

**From:** Barnett, Bonnie A. [<mailto:Bonnie.Barnett@dbr.com>]  
**Sent:** Thursday, October 18, 2018 3:09 PM  
**To:** Farrier, Brian <[Farrier.Brian@epa.gov](mailto:Farrier.Brian@epa.gov)>; Benjamin, Deborah <[Benjamin.Deborah@epa.gov](mailto:Benjamin.Deborah@epa.gov)>  
**Cc:** [bart.seitz@bakerbotts.com](mailto:bart.seitz@bakerbotts.com); [brett.marston@apks.com](mailto:brett.marston@apks.com); [VAdams@adamsjordan.com](mailto:VAdams@adamsjordan.com); [chris.walker@klgates.com](mailto:chris.walker@klgates.com); Josko, Nicole D. <[Nicole.Josko@dbr.com](mailto:Nicole.Josko@dbr.com)>; [rdavis@seyfarth.com](mailto:rdavis@seyfarth.com)  
**Subject:** Armstrong World Industries Superfund Site, OU-2

Brian & Deborah –

See the attached letter, which I am submitting on behalf of Respondents at the above-referenced site. Please let us know if you have any questions.

Best,

Bonnie

Bonnie Allyn Barnett  
**Drinker Biddle & Reath LLP**  
One Logan Square, Ste. 2000  
Philadelphia, PA 19103-6996  
(215) 988-2916 *office*  
(215) 689-4257 *fax*  
[Bonnie.Barnett@dbr.com](mailto:Bonnie.Barnett@dbr.com)  
[www.drinkerbiddle.com](http://www.drinkerbiddle.com)

\*\*\*\*\*

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\*\*\*\*\*

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Lead Office

One Logan Square  
Suite 2000  
Philadelphia, PA  
19103-6996

215-988-2700  
215-988-2757 fax  
www.drinkerbiddle.com

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October 18, 2018

**VIA CERTIFIED MAIL NO. 7013 3020 0001 0259 4467  
AND E-MAIL TO FARRIER.BRIAN@EPA.GOV**

Brian Farrier  
Project Coordinator  
Region 4 Superfund Remedial and Site Evaluation Branch  
U.S. Environmental Protection Agency  
61 Forsyth Street SW  
Atlanta, GA 30303

**Re: *Armstrong World Industries Superfund Site, OU-2  
U.S. EPA Region 4, Docket No. CERCLA-04-2018-3759  
Notice of Project Coordinator***

Dear Mr. Farrier:

I am writing on behalf of Respondents to the Administrative Settlement Agreement and Order on Consent ("Settlement Agreement") for the preparation and performance of a remedial investigation and feasibility study ("RI/FS") for Operable Unit 2 at the Armstrong World Industries Superfund Site located in Macon, Macon-Bibb County, Georgia (the "Site"). Pursuant to Paragraph 41 of the Settlement Agreement, the purpose of this letter is to notify you that Respondents have designated Joseph Nicolette, Senior Principal, of Environmental Planning Specialists, Inc. ("EPS"), to serve as the Project Coordinator. Mr. Nicolette's contact information is as follows:

Joseph Nicolette  
Senior Principal  
EPS, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[jnicolette@envplanning.com](mailto:jnicolette@envplanning.com)  
(678) 336-8554

For a description of EPS's qualifications, please refer to the October 2018 Statement of Qualifications attached hereto as Exhibit A. With respect to other project personnel (contractors, subcontractors, consultants, and laboratories), Respondents shall promptly notify EPA as such personnel are selected and provide names, titles, and qualifications.



October 18, 2018

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Please do not hesitate to contact me with any questions. We look forward to working with you.

Best regards,

A handwritten signature in blue ink, appearing to read "Bonnie Allyn Barnett", with a long horizontal line extending to the right.

Bonnie Allyn Barnett

BAB

cc: Deborah Benjamin, Esq. (via e-mail)  
Virgil Adams, Esq. (via e-mail)  
Rebecca Davis, Esq. (via e-mail)  
Brett Marston, Esq. (via e-mail)  
Bart Seitz, Esq. (via e-mail)  
Chris Walker, Esq. (via e-mail)

# **EXHIBIT A**



STATEMENT of QUALIFICATIONS for the  
***United States Environmental Protection Agency***

**ARMSTRONG WORLD INDUSTRIES SUPERFUND SITE  
OPERABLE UNIT TWO (OU2)**

October 2018

**Environmental Planning Specialists, Inc.**

Corporate Office: 400 Northridge Road, Suite 400    Sandy Springs GA 30350    (404) 315-9113    [www.envplanning.com](http://www.envplanning.com)





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### **Exhibits**

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|-----------|---|
| Exhibit 1 | GIS & Environmental Data Management       |
| Exhibit 2 | Project Team Bios                         |
| Exhibit 3 | Net Environmental Benefit Analysis (NEBA) |
| Exhibit 4 | Quality Management Plan (QMP)             |





## Statement of Qualifications

Environmental Planning Specialists, Inc. (EPS) is pleased to provide this Statement of Qualifications (SOQ) to support the potentially responsible parties (PRP's) in the Remedial Investigation (RI), Baseline Risk Assessment (BRA), and Feasibility Study (FS) for the Armstrong World Industries (AWI) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund Site, Operable Unit Two (OU2) (GAN000410033), located in Macon, Georgia.

### Why EPS

EPS is uniquely qualified to lead the RI/FS effort for the AWI OU2 site.

1. EPS Staff have experience at over 40 CERCLA sites, 15 in USEPA Region 4. We have developed good working relationships with USEPA Region 4 staff and other federal and State of Georgia Environmental Protection Division (GAEPD) representatives.
2. Working as the Project Coordinator on the AWI OU1 site over a 5 year period, Joseph Nicolette, the PRP designated Project Coordinator for OU2, worked closely with the United States Environmental Protection Agency (USEPA) on the EE/CA for OU1.
  - a. In addition to Joe's specific experience associated with OU1 and OU2 site conditions, Joe has significant experience with: 1) CERCLA sites and associated stakeholder management, 2) polychlorinated biphenyl (PCB) technical evaluations, 3) human health and ecological risk assessments, 4) fish tissue evaluations, 5) is a nationally recognized expert in the areas of risk management, net environmental benefit analysis (NEBA) for remedial alternative selection, natural resource damage assessments (NRDA), and ecosystem service valuation, 6) has managed CERCLA large-scale sampling and remediation programs, and 7) has effectively provided cost control on large complex projects.
  - b. Joe has served as the Project Coordinator and/or risk management advisor on behalf of the responsible party at multiple Superfund (CERCLA) sites. He has project experience on CERCLA sites in EPA Regions 2, 3, 4, 5, 6, 8, 9, and 10.
3. By way of example, EPS has managed one of the most comprehensive, complex, and largest CERCLA characterization and remediation projects in EPA Region 4, the LCP Chemicals Site in Brunswick, Georgia (a coastal Georgia site):
  - ✓ EPS led CERCLA work for three time-critical removal actions (TCRA's), and three Operable Units (OU1, OU2 and OU3).





- ✓ The work EPS has done on behalf of the responsible parties has been recognized by both EPA headquarters and the responsible parties.
  - ✓ Mr. Kessler (EPS Senior Technical Advisor for the AWI OU2 Site) has served as Technical Director over the above-referenced TCRA's and OU's, including the RI's for all three OU's, with this work spanning over two decades.
  - ✓ This site has many similarities to the AWI OU2 site, including having PCBs as a constituent of interest and ecological risk assessment as a primary component of the RI.
  - ✓ EPS personnel working under Mr. Kessler have served a multitude of functions including: preparation of RI/FS reports for all OUs; preparation of sampling and analysis plans, quality assurance plans, health and safety plans, and data quality objectives plans for these RI's; site assessment including extensive estuarine and terrestrial ecological assessment; geochemical and natural attenuation modeling; human health risk assessment (HHRA); ecological risk assessment (ERA), ready-for-reuse land development; on-site resident engineering / construction management; and natural resource damage assessment / compensatory restoration.
4. Similar as to what was conducted for OU1, most of the project work on OU2 will be executed out of a local Georgia office with local Georgia personnel having the CERCLA RI/FS expertise, experience and local agency relationships to successfully execute the project work competently, efficiently, and cost-effectively.

A brief corporate overview of EPS is provided in the following section, followed by a description of our qualifications and experience relevant to the AWI Superfund Site, OU2.



## EPS Overview



Environmental Planning Specialists, Inc. (EPS), celebrated their 20<sup>th</sup> year in business in 2017. EPS was developed to provide strategic and innovative solutions to environmental issues facing our clients. A key goal of our services is to help clients manage their corporate risks, protect human health and the environment, maintain favorable regulatory and public relations, and manage site specific and programmatic costs. Although moderate in size, EPS has a proven track record in delivering on the most complex environmental projects at state and federal levels.

EPS is employee-owned with no outside ownership partners. The firm is led by 4 Senior Principals serving four primary practice areas: 1) site assessment/remediation engineering; 2) ecosystem services and natural resources (including risk assessment, NEBA, and NRDA); 3) air permitting and compliance; and 4) EHS compliance consulting. The firm is financially stable with no debt.

Our consultancy provides advanced scientific and engineering support to help clients make informed business decisions. Our team combines expertise in environmental programs and associated regulations, cutting-edge technologies, engineering, science, and ecology to develop risk management strategies to help our clients balance the risks, benefits and trade-offs associated with their decision-making. Our clients are listed on the following page.





## Our Clients

**Clients:** **Industry** | ABB | AIG | Alabama Coal | Anchor Glass | Armstrong World Industries, Inc. | Atlantic Southeast Airlines, Inc. | Avery Dennison Corporation | BASF | Birdsong Peanut Company | BonL BP Arco | Cabot Corp. | Caraustar | Carolina Recycling Group LLC | Carrier Corporation | Carry-On Trailer | Cemex USA | Charleston Air Force Base | Chlorox Company | Clark Atlanta University | Colonial Pipeline Company | Cytec | Delta Air Lines | Drexel Chemical Co. | Dow Chemical Co. | Fenner Dunlop | First American Resources Company | Formica Corporation | General Electric | Georgia-Pacific Corporation | Georgia Power Company | Georgia State University | Gerdau Ameristeel | Gulfstream Hercules | Herman Miller | Hill Phoenix | Home Depot | Honeywell International | Indalex Aluminum | J.M. Huber Jacuzzi | Keystone Industries, LLC | Keystone Steel | Kmart | Koch | Lafarge | Lockheed | Mead Westvaco (NewPage) | Morehouse College | Norfolk Southern Co. | Northside Hospitals | Novellis, Inc. | Nucor Vulcraft | Oglethorpe Power | Olin Corp. | Partners of the Americas | PPG | Precision Protective Coating | Procter & Gamble Company | Quebecor World | Rayonier (Southern Wood Piedmont) | Reliance Steel | Rheem | Rock-Tenn Corporation | Roper Corporation | Roper Pump | Southern Company | Southwire Company | Starbucks Coffee Company | Transco | TRONOX | US Can Company | Wrigley | XL Environmental, Inc. |

**Law Firms** | Akerman Senterfitt | Alston & Bird | Arnall Golden Gregory | Balch & Bingham | Bradley Arant Chamberlain Herdlicka | Dickinson Wright | Drew Eckl & Farnham | Foley & Lardner, LLP | Hunton and Williams | Jones Day Kilpatrick Stockton | Jones Walker | King & Spalding | McGuire Woods | McKenna, Long & Aldridge | Miller & Martin | Pillsbury Winthrop Shaw Pittman | Powell Goldstein | Taylor English | Troutman Sanders





## **EPS CERCLA Project Expertise**

### **Overview**

The EPS Proposed Project Coordinator and Senior Technical Advisor each have over 30 years of experience in all aspects of CERCLA projects. Their CERCLA expertise and experience span a wide range of project types, regulatory frameworks, and project sizes. In addition, they have supported both individual PRPs as well as joint cooperative PRP groups. Our Principals have served as the Supervising Contractor at various sites across the country with our staff Superfund experience in USEPA Regions 2, 3, 4, 5, 6, 8, 9 and 10. Many of these CERCLA sites have focused on both PCBs and metals requiring risk management expertise to address the potential transfer of these contaminants to human and ecological receptors and the development of appropriate remedial actions as necessary. Our services have included, but are not limited to, the following key components of the CERCLA process as required for the AWI OU2:

#### **1. Project Coordination and Management**

- Serving as the Project Coordinator on behalf of the PRP(s);
- Coordinating with the regulatory agencies (USEPA and state agencies) and the PRP Group;
- Supervision and budget control of contractors and sub-contractors;
- Consideration of potential NRDA implications of decisions conducted throughout the RI/FS process; and
- Progress Reporting and Periodic USEPA and PRP group update calls/meetings.

#### **2. Project Scoping, Strategy and Plan Development**

- Conducting site visits, historical site information reviews, data compilation and synthesis;
- Developing an overarching strategy for development of the RI/FS including conceptual site model (CSM) development and data gap identification;
- Identify RI/FS and preliminary remedial action objectives, and State and Federal Applicable or Relevant and Appropriate Requirements (ARARs); and
- RI/FS planning document development (RI/FS Work Plan, Sampling and Analysis Plan (SAP) – Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP), Ecological Risk Assessment Plans, and Health and Safety Plan (HASP).





### **3. Implementation and Oversight of RI/FS Work Plans**

- Site characterization and multi-media sampling;
- Ecological studies (field and laboratory) of potential receptors; and
- Supplemental sampling, if necessary.

### **4. Developing Data Management and GIS Applications**

- Designing and structuring relational database systems;
- Integrating data into the EPA mandated EQUIS DART database system;
- Integrating the database with the project Geographical Information System (GIS) for ease of manipulation and analysis; and
- Rendering 2-D and 3-D visualization of environmental data.

### **5. Conducting of Baseline and Refined Risk Assessments**

- Ecological Risk Assessment; and
- Human Health Risk Assessment.

### **6. Conducting Treatability Studies (if necessary)**

### **7. Development and Screening of Remedial Action Alternatives**

- Evaluating alternatives regarding nine criteria considerations; and
- NEBA where appropriate.

### **8. Detailed Analysis of Alternatives and Feasibility Study Report**

- Evaluating alternatives regarding nine criteria considerations; and
- NEBA where appropriate.

### **9. Community Involvement and Technical Assistance Plan Development**

### **10. Removal Action Design and Implementation Oversight**



A matrix of the representative CERCLA project experience of EPS Staff is provided on the following page. These projects reflect significant experience in all the key tasks required by the USEPA Order for the AWI OU2 RI/FS statement of work (SOW).

As presented in this SOQ, EPS staff have demonstrated their competence in delivering a wide range of services associated with Superfund/CERCLA sites, including:

- preparation of project plans (RI/FS work plans, sampling and analysis plans including quality assurance project plans with data quality objectives (DQO's) development and field sampling plans, and health and safety plans),
- implementation and oversight of field studies,
- preparation of human health risk and ecological risk assessments, and
- preparation of RI/FS reports to remedial design (RD) oversight and deliverables.

EPS staff have also managed numerous time-critical (TCRA) and non-time-critical removal response actions (NTCRA).

The key tasks associated with the CERCLA process are discussed in more detail following the Profile Project with additional project specific examples being provided in the Selected Case Studies section.





## Matrix of EPS Staff Representative Experience on CERCLA Sites

Matrix of Representative CERCLA Project Experience for EPS Staff										
	Superfund Program				Chemicals of Concern					
	TCRA	RI/FS	RD/RA	Other	PCB	VOC	SVOC	Pest	Metals	
<b>Region 4 Sites</b>										
LCP Chemicals, GA	✓	✓	✓		✓	✓	✓		✓	
Terry Creek, GA	✓	✓						✓		
Armstrong OU1, GA				✓	✓				✓	
LCP-Holtrachem, NC	✓	✓			✓				✓	
Homestead AFB, FL				✓	✓					
Coronet Industries, FL		✓							✓	
Smith's Farm, KY		✓	✓			✓	✓		✓	
Green River Disposal, KY	✓	✓	✓		✓	✓	✓		✓	
Macon Dockery, NC				✓		✓	✓		✓	
Ward Transformer, NC				✓	✓					
ILCO, AL			✓							✓
Arkwright Dump, SC				✓				✓	✓	
Sangamo 12 Mi. Creek, SC				✓	✓					
Marshall Space Flight Center, AL		✓			✓	✓			✓	
Tennessee Products, TN				✓			✓			
<b>Other Regions</b>										
Duamish Waterway, WA				✓	✓					
Hanlin-Allied-Olin, WV	✓	✓	✓		✓	✓	✓		✓	
Crab Orchard NWR, IL		✓	✓		✓	✓	✓		✓	
EH Schilling Landfill, OH		✓	✓			✓	✓		✓	
Vandale Junkyard, OH			✓			✓			✓	
Quanta Resources, NJ		✓				✓	✓		✓	
Passaic River, NJ				✓				✓		
Kalamazoo River, MI			✓		✓					
Delaware River, PA					✓				✓	
Linden Chemicals, NJ				✓					✓	
Fields Brook, OH				✓	✓	✓	✓		✓	
Fox River, WI		✓			✓					
Willamette River, OR		✓			✓					
Onondaga Lake, NY				✓	✓					
Edwards Air Force Base, CA			✓			✓			✓	
Jasper Creosoting, TX		✓				✓				
PPG Calcasieu River Estuary, LA					✓				✓	
Rocky Mountain Arsenal, CO				✓				✓	✓	
US Titanium, VA		✓							✓	
Rentokil, VA				✓			✓		✓	
Eastern Diversified Metals, PA		✓			✓		✓		✓	
Missouri Electric Works, MO				✓	✓					
LA Harbor, CA				✓	✓				✓	
Blackwell, OK				✓					✓	
Canadian-OXY Ltd., BC Can.				✓					✓	





## **Project Coordination and Management**

EPS Senior Principals have served as the Project Coordinator for the responsible party on several sites over the past two decades. Project coordination is an important role in successfully working through the CERCLA process. An important aspect in coordinating a CERCLA project is the establishment of a professional working relationship with the regulatory agencies and attention to detail, timelines, and stakeholders' needs. It is also important that project tasks are defined clearly and expected levels of effort and associated costs are actively managed. As such, cost control of all SOW's is required to successfully meet end of project financial goals.

The PRP group has designated that Joseph Nicolette serve as the Project Coordinator and Principal-in-Charge for the AWI CERCLA OU2 site. Over a 5-year period, while working on the AWI OU1 site, Joe developed a professional working relationship with the USEPA RPM for OU2. In addition, Joe is a recognized expert in site risk management and remedial liability through NEBA. He is also nationally recognized for his NRDA experience and role in pioneering NRDA injury and restoration ecological economics approaches. As the Project Coordinator, he would be tasked with managing to the expectations of the PRP group, coordinating with the USEPA and GAEPD, providing oversight of the technical direction, and the dissemination and review of project materials, documents, progress reports, and regular progress calls/meetings. The proposed Project Coordinator and his role are described in further detail in the Proposed Project Team section of this SOQ.

## **Project Scoping, Strategy and Plan Development**

EPS staff have developed CERCLA and RCRA documentation and plans for a wide variety of sites that includes RI/FS Work Plans, SAPs (FSP's and QAPP's), and HASP's. Spending the time to develop a project scope, including the documents and plans that will lay-out the approach, is essential to successfully and efficiently navigating through the process. The project scope will lay the foundation for moving forward. Up-front planning, scheduling and participation in site visits, historical site information reviews, and existing data source evaluation and synthesis will all support the development of the strategy. The overall goal is to provide the most accurate depiction of the site condition along with any specific data gaps that need to be filled and will set the stage for the RI/FS Work Plan to be developed. Once the existing condition is documented and known data gaps are identified, RI/FS plan development will follow. The major RI/FS plan documents to be generated include the RI/FS Work Plan, SAP [consisting of the FSP and the QAPP], and the HASP. Additional interim deliverables will be required and are detailed in the OU2 SOW.





## **Implementation and Oversight of the RI/FS Work Plan**

Once the RI/FS Work Plan, SAP, and HASP are developed, implementation of the plans will commence upon approval by the USEPA. EPS has qualified health and safety trained staff that have led and participated in the conduct of large field sampling programs as part of remedial investigations for a multitude of sites. Many of these sampling programs have focused on PCBs and metals in sediments, soils, groundwater, surface water and fish tissue. Implementation of RI/FS plans is a significant task and requires managing the level of effort and therefore, associated costs with collecting the required data. Site data collection for OU2 is likely to consist of sampling of soils, sediments, surface water, groundwater, and biota. Data collected as part of these plans will be incorporated into the ecological and human health risk assessments. As part of the site characterization phase, it is possible that additional data gap(s) may be identified and in some cases, will require supplemental sampling event(s).

## **Data Management and GIS Applications**

Data management is a key component of the CERCLA process. Managing the collection, quality assurance/quality control (QA/QC), analysis and dissemination of data is crucial to stakeholder understanding of site conditions and in defending against potential claims and allegations of impacts. EPS staff are not only experts in the design, collection and sampling of environmental data, they are also experts certified in database structuring, design, and management. Our database systems are developed to integrate with our GIS system for ease of manipulation and analysis. Our staff have also designed and structured nationwide large-scale database systems meeting criteria required of the USEPA, private industry, and stakeholder uses. Further details regarding our data management and GIS capabilities, as well as case study examples, are provided in **Exhibit 1**.

## **Compatibility with the Required USEPA DART Database System**

EPS has extensive experience in developing database systems that conform to the recently mandated USEPA EQUIS standards for CERCLA/Superfund sites. The USEPA SOW states that site information and data shall be managed, evaluated, and reported using an Electronic Data Deliverable (EDD) in the EPA's Data Archival and ReTrieval (DART) program following the EPA's Environmental Data Submission Guidance (SESDGUID-106, most recent revision). EPS staff have worked hand-in-hand with USEPA database personnel over the past several years on the incorporation of data into EPA's system. Mrs. Weber-Goeke, our database management expert, was an active member and participant on the monthly EPA Region 4 data management team conference calls. Mrs. Weber-Goeke has been submitting environmental data to the EPA Region 4 database (Data Archival and ReTrieval - DART) on a frequent basis as part of other projects. DART is Region 4's main repository for storing Superfund data, which includes locational, geological and analytical data from Superfund sites across the Region. EPA Region 4 has implemented EQUIS version 6.2 and upgraded





the new EPAR4.xse format file, of which EPS staff are well versed in communicating between the systems.

### **Conduct of Baseline and Refined Risk Assessments**

Site risk management, for both human health and ecological issues, is one of the most critical components of the outcome of an RI/FS process as these risks will drive the ultimate remedy. It is therefore important that the design of field sampling and analysis programs be developed to accurately and efficiently evaluate potential site risks. These actions should be developed during the up-front scoping process. In addition, risk assessment needs to be evaluated from a realistic standpoint, focusing on actual likely exposure times, concentrations, etc. Our experience also includes the development of Risk-Based Corrective Actions (RBCA's).

EPS Senior Principals, Joe Nicolette and Kirk Kessler have developed site risk management approaches and led the conduct of baseline and site-specific human health and ecological risk assessments for a variety of CERCLA sites. Site-specific risk assessments are needed to get at true risks using realistic risk exposure parameters. The accurate depiction of risk is essential to understanding the need for remediation. EPS experience includes identifying constituents of concern (COC), understanding the fate and transport of these chemicals through the environment, identifying appropriate receptors, developing appropriate threshold concentrations, developing realistic risk scenarios, and ultimately, developing site specific cleanup goals if necessary.

It should also be recognized that risk management strategies based on risk assessment should also consider the risks of proposed remedies on ecological and human health factors. Joe Nicolette is recognized for his contributions in the development of the NEBA approach. The approach incorporates ecosystem service values and the results of risk assessment to help maximize benefits to the public while managing site risks. For example, in some cases, human and ecological impacts from physical implementation of a remedy may be greater than the risks driving the remedy as predicted by the risk assessment. Risk assessment and the development of the approach for risk assessment is a key component of determining what, if any, remediation may be required.

### **Conduct of Treatability Studies**

EPS is well versed in the use of treatability studies as part of remedial technology screening. Potential remedial technologies should be developed early in the RI/FS process to assess whether data gaps exist regarding technology screening and selection, and if so, to develop a program to address those data gaps prior to the FS stage. EPS has experience with a wide range of lab-scale and field-scale treatability studies for organic and inorganic contaminants in various environmental media. Aaron Williams, PhD (formerly with EPA Office of Research and





Development) and Timmerly Bullman, PhD, P.E., both Senior Associates with EPS, are well versed in the design and applicability of Treatability Studies in screening remedial technologies.

### **Development and Screening of Remedial Action Alternatives**

EPS understands the process of developing and screening potential remedial action alternatives. Often submitted as a technical memorandum, this deliverable is used to gain EPA concurrence on those remedial alternatives that are most suitable for the site, and warrant further detailed evaluation (i.e., the last step of the FS process). This deliverable is where results of treatability studies are presented, in the context of a full-scale remedy. Often the regulatory triggers, or ARARs, are finalized in this deliverable.

### **Detailed Analysis of Alternatives and Feasibility Study Report**

The final phase of the FS process is the detailed analysis of alternatives, following the 9-step criteria evaluation process of EPA's RI/FS guidance. This is the opportunity to introduce and quantify balancing factors offered by a structured NEBA-based evaluation. EPS staff are well versed in the use of NEBA for ecologically-driven remedies, where often the remedial footprint can be quite extensive and common solutions such as removal/dredging are ecologically-damaging. The NEBA-based approach within the 9-step criteria evaluation process would be focused on developing the most appropriate remedy. A NEBA-based approach, as part of the overall risk management strategy, has shown to maximize benefits to the public while managing site risks.

### **Emergency Removal Action Design and Implementation Oversight**

EPS staff have implemented numerous CERCLA emergency response removal actions across the southeastern US. EPS is well versed in real-time data management and onsite resident engineering, prerequisites for this type of quick response. Notable examples include three separate removal actions for the LCP Chemicals Superfund Site in Georgia, as well as sites in North Carolina, Illinois and West Virginia.

### **Community Involvement and Technical Assistance Plan Development**

EPS staff have worked, on behalf of our clients, with federal and state agencies in communicating site information to the public in many states, especially Georgia. We have assisted the EPA in developing site update and reports that have been presented in their websites and disseminated to the press. This includes the development of technical assistance plans (TAPs). As part of this communication effort, we have also worked with third-party representatives to convey the appropriate information.





## **USEPA Region 4 and Other Agency Relationships**

EPS staff have been involved on some of the highest profile and most challenging CERCLA projects in EPA Region 4 (and elsewhere). EPS staff have developed a number of professional relationships with EPA Region 4 staff in particular, and other Federal agencies often involved with CERCLA sites, including the National Oceanic and Atmospheric Administration (NOAA), the US Fish and Wildlife Service (USFWS), and the Agency for Toxic Substances and Disease Registry (ATSDR).

In addition to Joseph Nicolette's role in working with USEPA Region 4 at the AWI OU1 site, other EPS staff have developed an outstanding reputation with many of the regulatory personnel in USEPA Region 4. In addition, our staff have professional relationships with several staff from the Georgia Environmental Protection Division (Georgia EPD).

## **Key Project Team**

The EPS project team includes personnel encompassing many disciplines. This section provides an overview of four key roles within our proposed project structure: 1) the Project Coordinator; 2) the Senior Technical Advisor; 3) the Risk Assessment Task Manager; and 4) Remedial Technology Evaluation. Each of these roles are discussed, in turn, below.

Project team bios are provided in **Exhibit 2** (detailed resumes can be provided upon request).

### **Designated Project Coordinator - Joseph Nicolette**

Joseph Nicolette will serve as the Project Coordinator as designated to the USEPA on behalf of the PRP's. Joe is a Senior Principal and Ecosystem Services Practice Leader for EPS. The role of Project Coordinator will entail coordinating, on behalf of the PRP's, with the USEPA, GAEPD, and other stakeholders. He will be responsible for oversight of the project including strategy development, technical work scope, and contractor management to control costs and ensure that deliverables meet the quality required by the PRPs and regulatory agencies.

Additionally, he will oversee the development of a technically defensible program under which the RI/FS is conducted. With over 30 years of experience, Joe is uniquely qualified to serve as the Project Coordinator and lead the development and implementation of the RI/FS scope of work as required by the USEPA, GAEPD, and the PRPs at the AWI OU2 site. As stated earlier, Joe has significant experience with OU2 site conditions; USEPA Region 4; CERCLA sites and associated stakeholder management; PCB technical evaluations; human health and ecological risk assessments; fish tissue evaluations; is a nationally recognized expert in the areas of risk management, NEBA for remedial alternative selection, NRDA, and ecosystem service valuation; has managed CERCLA large-scale sampling and remediation programs; and has effectively provided cost control on large complex projects.





He has served as the Project Coordinator and/or risk management advisor on behalf of the responsible party at multiple Superfund (CERCLA) sites. He has project experience on CERCLA projects in EPA Regions 2, 3, 4, 5, 6, 8, 9, and 10 and as earlier referenced, he served over 5 years as the EPA Project Coordinator for AWI during implementation of the OUI action at the Macon site. This included coordination with Region 4 USEPA and the Georgia EPD representatives.

Prior to his work at AWI's Macon Site, Mr. Nicolette served as the Project Coordinator at the Crab Orchard National Wildlife Refuge CERCLA site. Joe worked jointly with two PRP's (a private industry client and the USFWS). He helped negotiate environmental remedial and NRDA associated liabilities related to historical PCB releases at the site. In serving as the Project Coordinator, he coordinated closely with the federal (USFWS, USEPA) and state (Illinois Department of Natural Resources (ILDNR), Illinois EPA) regulatory agencies. This was a unique case in that the USFWS was a PRP and at the same time, a Trustee for natural resources. Joe led ecological and human health risk assessments for the PRPs (including the USFWS) at Crab Orchard National Wildlife Refuge. Ecological risk assessments focused on PCBs in fish, birds, mammals and invertebrates, including site and species-specific food chain modeling. Human health risk assessments were developed to reflect appropriate long-term land uses and exposures. As such, Joe can bring to bear his understanding of PCBs and metals as they relate to fish bioaccumulation and risks to fish and humans as part of the overall risk management strategy for the site. A NEBA-based risk management strategy was used as part of the Crab Orchard remedial investigation of soils, sediments and groundwater to manage intrusive remediation.

### **Risk Management Strategy**

In his role as Project Coordinator, Joe will also provide oversight of the risk management approach for the site. Joe has provided oversight over several large-scale environmental sampling programs that have incorporated innovative sampling and analysis methods to evaluate environmental data from a risk-based perspective. These methods have included the use of surface weighted area concentrations (SWAC) and incremental sampling methodology programs (ISM). As such, Joe will be intimately involved in the development and evaluation of the risk management approach for the site including risk-based corrective actions.

Joe is recognized for his contributions in developing the NEBA approach (**Exhibit 3**). The NEBA approach focuses on environmental risk management decision-making strategies (e.g., remedial alternative selection) that provide the greatest net environmental benefit to the public while managing site risks and costs. Inherently, this approach has limited intrusive remediation that provides little or no benefit to ecosystem services.

*Joe co-authored the first formalized NEBA framework recognized by the USEPA, the USEPA Science Advisory Board, and the National Oceanic and Atmospheric Administration (NOAA).*





### **Senior Technical Advisor – Kirk Kessler**

Kirk Kessler P.G., the firm's Remediation Practice Leader, has practiced within the CERCLA regulatory area nearly exclusively since the mid-1980's. He co-established the CERCLA Program Management intra-company department during his early career (1985-1993) with Law Companies (now AMEC/Foster Wheeler) serving as the focal point for all CERCLA work within the company, serving under the leadership of former EPA Regional Administrator (under President Reagan) Lee Thomas. Mr. Kessler then served as the leading CERCLA specialist within GeoSyntec Consultants for more than a decade, before joining EPS as a Partner in 2006.

Mr. Kessler's CERCLA expertise and experience span a wide range of project types, regulatory frameworks, and project size. For example: he has served individual members of RP groups in cost allocation; he has served RP groups in interactions with USEPA during Proposed Plan and Record of Decision development; he has served as Project Manager and Technical Director for a variety of sites involving time-critical removal actions, non-time-critical removal actions, RI/FS and RD/RA. He understands the intricacies of these regulatory programs and combined with strong technical competency and strategic/forward planning, he can deliver a win-win outcome for both client project managers and regulatory stakeholders alike. Mr. Kessler has worked on CERCLA projects across the US and has been the Technical Director of several high profile projects including the LCP Chemicals Superfund Site in Brunswick, Georgia.

Mr. Kessler has worked his entire career in the southeastern US representing industrial and attorney clients with regulatory matters. He is held in high regard with numerous Remedial Project Managers in EPA Region 4 as well as technical staff (hydrogeologists, human health risk assessors, ecological risk assessors). Personal references can be provided upon request for all personnel categories.

Mr. Kessler also serves as Expert Witness on numerous litigation matters, primarily involving the evaluation of chemical transport and fate in the environment. Some of these cases dealt specifically with the multi-media transport and fate of PCB in river/estuarine environments.

### **Risk Assessment Task Manager – Timmerly Bullman**

Timmerly Bullman, P.E., PhD, will serve as the Risk Assessment Task Manager for the AWI OU2 project and will oversee the development of key site documents as well as handle cost control measures. Dr. Bullman is proficient in project management for site characterization and remediation projects, human health and ecological risk characterization, and data analysis and GIS applications. She has worked within a variety of regulatory programs including USEPA programs such as CERCLA, the Toxic Substances Control Act (TSCA), and State of Georgia programs including the Voluntary Remediation Program (VRP), Resource Conservation and Recovery Act (RCRA), Hazardous Site Response Act (HSRA), and Brownfields.

Dr. Bullman is skilled in a variety of areas of environmental consulting. She has overseen projects with the USEPA, USEPA Region 4, and GAEPD, and has familiarity with guidance for other states'





risk programs. She has worked and negotiated with regulators in the GAEPD's VRP, RCRA, HSRA, and Brownfield's programs as well as with the USEPA's PCB (TSCA) program. As a project manager she is involved in strategic planning to balance the requirements of the regulatory authority and the needs of the client in a responsive, efficient and cost-effective manner. She has extensive experience developing and implementing project plans for characterizing the extent of soil and groundwater contamination, performing risk evaluations (human health, ecological and vapor intrusion), and performing groundwater modeling. She has managed multi-million-dollar soil and groundwater remedial actions.

#### **Remedial Technology Evaluation – Aaron Williams**

Aaron Williams, PhD, will serve as the Technology Evaluator for the AWI OU2 project. Dr. Williams has fifteen years of research, site assessment and remedial technology design and implementation experience. His broad background in environmental chemistry, engineering and geologic sciences allows for a holistic evaluation of project sites with an emphasis on applying both conventional and novel approaches to achieve site objectives, including adapting or modifying nontraditional technologies to assess and support complex remedial projects. In this capacity, Dr. Williams leads or co-leads the evaluation and selection of remedial technologies for EPS and has completed numerous treatability and pilot test studies that have resulted in value-added full-scale remedial implementations.

Prior to joining EPS, Dr. Williams applied his background and assessment skills with the U.S. Environmental Protection Agency's Office of Research and Development (ORD). His work with ORD focused on investigating and assessing novel technologies for sediment and soil remediation, with an emphasis on quantifying contaminant risk based on exposure potential rather than generalized contaminant concentrations that do not account for sequestered (*i.e.* non-bioavailable) contaminant phases. Dr. Williams's experience encompasses assessment and remediation of inorganic (*i.e.* metals) and organic contaminants (*e.g.*, PCBs, VOCs, SVOCs).

Examples of Dr. Williams's experience with PCBs includes fate and transport studies includes modeled and field assessment studies. For example, Dr. Williams has assessed watershed distributions of PCBs and potential flux of PCBs due to both surface sediment transport and potential colloidal facilitated transport in groundwater. Dr. Williams has also directed tradition excavation remedial actions for PCBs following regulatory disposal procedures.



## Selected Case Studies

EPS helps our clients maintain regulatory compliance, aim for environmental excellence, and achieve high standards of corporate responsibility – all as elements of profitable growth. Our professional experience acquired through service in commercial and industrial sectors provides innovative and cost-effective solutions to our clients' environmental and corporate responsibility needs. Following are selected case studies representing EPS staff experiences related to CERCLA, RI/FS, PCBs, risk assessments, site characterization plan and document development, field implementation, etc.

### **LCP Chemicals of Georgia NPL Site**

CERCLA Removal Actions, RI/FS

### **Armstrong OU1 Superfund Site**

CERCLA EE/CA, OU-1 Remedial Action, NTCRA

### **Crab Orchard Lake NPL Site**

CERCLA RI/FS, NEBA, NRDA

### **LCP Holtrachem North Carolina Superfund Site**

CERCLA Removal Action & Engineering Evaluation/Cost Analysis

### **Superfund Site – Confidential Client**

Litigation Support & Expert Witness





## LCP CHEMICALS SITE, BRUNSWICK, GA

### CERCLA Removal Actions, RI/FS

The LCP Chemicals Superfund Site located in Brunswick, Georgia is our most comprehensive, and perhaps most complex CERCLA remediation project in USEPA Region 4. The site borders an estuarine marsh.

Mr. Kessler, Principal with EPS, has served as Technical Director for assessment and remediation services since 1994. Initially, Mr. Kessler directed two time-critical removal actions spanning a period from 1994 to 1999. The actions involved excavation of nearly 200,000 cubic yards of soil and 14 acres of salt marsh flats. Mr. Kessler prepared and successfully advanced a RCRA delisting petition for K071 process waste, allowing for Subtitle D disposal without pre-treatment.

Mr. Kessler also serves as the Technical Director for the post-removal action RI/FS for 3 Operable Units. He led the development of a sophisticated geochemical reaction model demonstrating in situ attenuation of mercury, arsenic and other metals in groundwater. The USEPA and local environmental coalition issued a favorable review of the Groundwater RI Report, stating "The study was generally thorough. It is apparent that a lot of thought was given to the activities planned and the data required to determine source removal and future potential remediation planning... "the fate and transport study was very thorough in its assessment of the mobility of the contaminants and the conclusion that natural attenuation of the contaminants will prevent further migration is well supported."

All data collected at the site are maintained in a GIS database designed by EPS. EPS has used the GIS to identify data gaps and communicate data and findings to the steering committee, agency, and public. This has proved to be an essential tool for conveying complex environmental information and has proved invaluable in terms of advancing technical arguments.





## ARMSTRONG WORLD INDUSTRIES OU1 LANDFILL CERCLA SITE, MACON, GA

Engineering Evaluation and Cost Analysis (EECA), Remedial Action, Non-Time Critical Removal Action (NTCRA)

Joseph Nicolette served as the EPA Project Coordinator on behalf of AWI and provided oversight of Operable Unit 1 (OU-1) evaluations, including the development and implementation of the engineering evaluation/cost analysis (EE/CA), remedial action design, and associated field sampling.

He assisted in negotiations with the USEPA and State agencies and coordinated OU-1 CERCLA activities with the USEPA and GAEPD. He developed monthly progress reports over a 5-year period and met regulatory requirements of the OU-1 AO.

Joe provided oversight of the site characterization efforts including the development of study plans [(the Sampling and Analysis Plan (SAP), Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP)]. He managed responses to comments on documents received and successfully worked through comments with the USEPA RPM and GAEPD.

Joseph also provided oversight of the baseline risk assessment for the human health and ecological risk assessments. He worked closely with the risk assessors to refine and develop realistic exposure scenarios for both the human health and ecological risk assessments.

A removal action was developed to cap a portion of the landfill. The landfill cap was constructed during the 2015 and 2016-time period. In addition to the landfill cap, a box culvert drainage system was developed as well as a mechanically stabilized earthen wall.

During this work (a 5-year period), Joe developed a professional working relationship with the USEPA RPM that included multiple face-to-face meetings to ensure that all project communications were on track. This included approval of various design modifications required during implementation of the OU1 remedy.





## CRAB ORCHARD NATIONAL WILDLIFE REFUGE PCB CERCLA SITE, ILLINOIS

Supplemental RI/FS, NEBA for Remedial Alternatives Analysis, NRDA Settlement, Large-Scale Sampling of soil, sediments and GW groundwater.

The Crab Orchard National Wildlife refuge is situated near Marion, Illinois. Historical releases of PCBs have been documented and an extensive RI/FS and RD/RA was conducted at the site. Sampling conducted as part of the 5-Year review process identified the presence of PCBs in additional locations of the site.

Joseph Nicolette served as the EPA Project Coordinator on behalf of the client and was responsible for negotiating and developing multiple aspects of a supplemental remedial investigation and feasibility study. In this case, a second PRP included the USFWS whom was in-charge of managing the wildlife refuge during the time of the PCB releases. Historically, the Department of Defense used part of the refuge for munitions manufacturing.

In developing the remedial investigation, a net environmental benefit analysis (NEBA) was used by the client and the USFWS to evaluate the need for additional remedial action. In this regard, Joe led the development of an incremental sampling program (ISM) to survey the upland acreage at the site. This approach was incorporated into the human health risk assessment.

Site characterization also identified marginal levels of PCBs in sediments in a downgradient swale leading to Crab Orchard Lake. Joe developed a surface weighted average concentration (SWAC) approach to evaluate the potential for ecological risks at the site. Joe led the implementation of a food chain model that evaluated the potential for PCB risks in fish, invertebrates, mammals, and birds. The risk assessment was refined based upon the development of SWAC values associated with habitats of particular species. The risk assessment based upon the model and calculated SWAC values indicated that there were no unacceptable ecological risks, except for a marginal risk to a burrowing wetland mammal.

To manage this marginal risk, the potential for sediment removal was evaluated. Using a habitat equivalency method analysis, it was determined that the physical habitat impacts associated with the intrusive remediation would outweigh the potential risk to the burrowing wetland mammal. As such, a restoration-based offset was developed and accepted by the USFWS. This offset provided ecosystem service value that outweighed the potential impact of the residual PCBs predicted by the risk assessment. The restoration-based offset to address the marginal risk provided a net ecosystem service benefit and was incorporated as part of the NRDA settlement.





## LCP HOLTRACHEM NORTH CAROLINA SUPERFUND SITE

### CERCLA Removal Action and Engineering Evaluation/Cost Analysis

The approximately 26-acre Site is in Riegelwood, North Carolina in the midst of the larger and nearly surrounding industrial facility. The Cape Fear River borders the north- northwest side of the property. The Site was previously utilized as a chlor-alkali manufacturing facility which used the mercury cell process. The facility ceased operation in 1999. USEPA Region 4 issued an Administrative Order in 2002 for a time-critical removal action to involve the decommissioning of the old mercury cell building, an inactive new membrane cell building, and numerous outbuildings associated with previous manufacturing. Mr. Kessler led the preparation of project plans for the removal action and managed the project implementation. He was successful in gaining a variance of Land Disposal Restriction for the disposition of the removal-action wastes and debris, allowing for direct off-site disposal without the added cost of pre-treatment.

Subsequently in 2004, USEPA issued another order for a non-time-critical removal action (an EE/CA) to address former waste disposal impoundments and contaminated environmental media on the facility and offsite along floodplains of the Cape Fear River (including sediments within the river). Mr. Kessler was a key part of the AOC negotiation process, which was successful in obtaining approval for a defined scope of a mandated ecological assessment within the Cape Fear River.

EPS staff compiled all the historic site characterization data records into a relational database and Geographic Information System (GIS) for the scoping of the EE/CA site characterization and ecological risk assessment. He directed the preparation of all the planning documents, including those required under the EPA Region 4 eight-step ecological risk assessment project. The use of the GIS allows numerous data coverages in addition to strictly environmental media concentrations, to allow a more comprehensive evaluation of data gaps and investigation scope. Early phases of site characterization and ecological risk assessment process (at Step 3 – screening level risk assessment) quickly identify PCB as a primary human health and ecological risk driver for this site both within the site proper and in the offsite floodplain setting. Conditions within the Cape Fear River were demonstrated to be acceptable, and no further ecological investigation is required for this domain. A novel approach was presented to EPA at this stage of the ecological assessment for the floodplain whereby a projected human-health based cleanup would be modeled in terms ecological risk reduction, with the strategy of opting out of the full 8-step ecological risk assessment process at the preliminary screening level stage (Step 3). USEPA and NCDENR concurred with this concept.





## SUPERFUND SITE – CONFIDENTIAL CLIENT PACIFIC NORTHWEST

### Litigation Support and Expert Witness

The confidential client project involves a Superfund site in the Pacific Northwest that is an industrialized, estuarine waterway. Commercial and industrial operations border both sides of the waterway, and numerous combined sewer overflow (CSO) networks drain broader areas of the industrialized floodplain. The waterway has been extensively studied by numerous parties, both in terms of sediment contamination and biological effects. Several response action areas have been designated to address the more heavily contaminated stretches, while the RI/FS process will address the waterway. PCBs are a primary contaminant of concern and risk driver.

Mr. Kessler with EPS was retained in a litigation case associated with one of the industrial sites bordering the waterway, specifically for the PCB (primarily Aroclor 1260) contamination issues. He was the lead expert witness on the source identification, transport and fate characteristics of Aroclor 1260. Mr. Kessler and his support staff first compiled a comprehensive site-specific and regional database from the voluminous amount of information available in the public domain and within the various regulatory agency project files. The database represents the most complete and accurate database for the region, with over one hundred thousand individual data records captured and verified. The database was then linked to a Geographic Information System (GIS) where various land use and land feature coverages could be examined with respect to the PCB and other chemical distributions, by depth, within upland soils and waterway sediments. Indeed, this method of evaluation proved to be more robust than seemingly sophisticated statistical models for the data presented by other experts on the case.

EPS performed an intensive literature research of the history of PCB manufacture and use in the electrical and other use industries. He worked closely with another case expert, Mitchell Erickson, Ph.D. who has published numerous journal articles and textbooks on the subject matter.

Chemical associations and spatial trends were readily discernable from the GIS-based examination of the data. This allowed Mr. Kessler to accurately attribute the sources of the PCB and their transport through the environment. This analysis dispelled opposing experts' opinions regarding PCB "fingerprinting" and source attribution. EPS's GIS model also provided the framework for evaluating potential remedial action costs under differing cleanup scenarios, and for the allocation of projected remedial action costs amongst the various Responsible Parties.

Mr. Kessler prepared an Expert Report and participated in numerous depositions associated with the case. The case was settled prior to trial, to the satisfaction of EPS's client.





## **ADDITIONAL EPS STAFF CASE STUDIES**

### **Terry Creek CERCLA Removal Action and RI/FS**

EPS staff lead the effort associated with a time-critical removal action for the Terry Creek CERCLA site in Brunswick, Georgia. Work involved development of project plans, site characterization of the Hercules outfall into Terry Creek and portions of tidal tributaries and dredge spoil islands in the vicinity, and development and implementation of a sediment dredging removal action. Mr. Kessler also prepared the RI/FS project plans. This work was conducted following the marsh removal action at the LCP Chemicals site, also in Brunswick, Georgia.

### **Turtle River Estuary Seafood Surveys and Fish Consumption Guidelines**

EPS staff conducted large-scale fish and shellfish surveys across the entire Turtle River estuary in Brunswick, Georgia. The State of Georgia's 2000 303(d) list identified the coastal estuarine waters of Gibson, Terry, and Purvis Creeks as well as the Turtle River System near Brunswick, Georgia as not supporting their designated use due to polychlorinated biphenyl (PCB) contamination in fish tissue. The Georgia Department of Natural Resources issued fish consumption guidelines in the 1990s for these waters due to PCB contamination in fish in all listed segments. In addition, a commercial fishing ban was issued in Purvis Creek due to PCB levels in fish tissue that exceed Federal Drug Administration (FDA) action levels.

EPS implemented a nearly 3-month sampling program in 2002 that resulted in the first update to the State's fish consumption guidelines since the 1990s, resulting in relaxation of many consumption restrictions for most of the geographic zones within the estuary. EPS also lead a more focused survey in 2005, and repeated the large-scale survey in 2011.

EPS staff presented a technical memorandum to the Georgia DNR providing calculations for a new, less restrictive set of consumption guidelines based on the 2011 survey which was accepted and approved by the DNR.

### **Ward Transformer Superfund Site**

Mr. Kessler and his EPS staff assisted some of the potentially responsible party companies during the OU1 RD/RA Consent Decree negotiation phase. OU1 is comprised of a large stream valley system down-gradient of the primary site (OU0). EPS conducted a data gaps review of the FS, and implemented a focused site characterization for PCBs (using low-level detection methods) across various reaches of the stream floodplain. EPS then re-examined the FS cost estimate updating the estimate for the client group.

**Passaic River, PRP Group NRDA Negotiations and Strategy Advisement**, New Jersey. EPS staff supported a group of Cooperating PRP's in developing a strategy and negotiating with the State and federal trustees regarding the Passaic River NRDA. Joseph Nicolette interfaced with the PRP group and the state and federal Trustees. His role was to assist the PRP's in developing a strategy to manage their NRDA liability at the site. He assisted with conducting preliminary evaluations of ecological and human use injury and compensatory restoration project identification.





**Sediment PCB Remedial NEBA Evaluation.** Confidential Client, Portland, Oregon. EPS staff provided technical and strategic support to a client on the Willamette River to settle both its NRD and mitigation liability.

**Delaware River, Pennsylvania, PCBs.** EPS staff supported a PRP on ecological risk and NRDA issues associated with historical PCB releases at the site. Specifically, they evaluated potential impacts of PCBs on aquatic invertebrates, fish, and birds. A resource equivalency analysis approach was used as part of the damage assessment. They evaluated agency impact analyses and developed appropriate compensatory restoration.

**Fox River PCBs.** EPS staff provided technical and strategic advice to a responsible party (RP) regarding the Fox River NRDA and participated in trustee negotiations on behalf of the RP.

**USEPA CERCLA NEBA Pilot Studies** – Joe Nicolette served as the principle investigator for a project evaluating the metrics that can be used to evaluate changes in ecosystem services associated with site remediation. This work was conducted for the USEPA Office of Solid Waste and Emergency Response (OSWER) group as it relates to evaluating the net environmental benefit (NEBA) associated with remedial actions at CERCLA (Superfund) sites.

The USEPA evaluated the use of NEBA to help demonstrate the benefits associated with site remediation and in the selection of remedial alternatives. The two sites evaluated were Homestead AFB in Florida and Rocky Mountain Arsenal in Colorado. COC's included PCB's, metals, etc.

**Passaic River, New Jersey.** Joe Nicolette developed a preliminary NEBA evaluation for Passaic River remedial alternatives (large scale sediment dredging) as proposed by the USEPA. The overall goal was to demonstrate the adverse effects that intrusive remediation could have on the environment compared to projected risk assessment.

**PCB Related Dam Removal at Lake Hartwell, South Carolina.** Joseph assisted a client in evaluation of the ecological impacts associated with the removal of two dams in South Carolina. The dam removals were being conducted as part of an NRDA settlement associated with PCB releases. Joe evaluated ongoing fish tissue PCB concentrations associated with MNA activities.

**Kalamazoo River, Michigan, PCBs.** Mr. Nicolette assisted a client on the Kalamazoo River in the evaluation of historical PCB concentrations, potential impacts to fish and terrestrial biota, development of appropriate SWAC concentrations, and remedial alternative evaluations. Joe evaluated fish tissue PCB concentrations and examined trends of PCBs in fish along the river.

**Confidential Client, Calumet River CERCLA, Allocation, Remedial, and NRDA Support.** Joseph represented a potentially responsible party (PRP) with remedial and NRDA liabilities associated with historical PCBs, metals, etc. releases. In this context, Joe reviewed allocation issues, HEA model runs, sediment ecological and water toxicity data, and sediment and water column concentration data to assist the client in responding to demands of the natural resource trustees and other PRPs.





**Allocation Modeling: Confidential Clients, New York, New Jersey, and Indiana:** Joseph has provided PRP identification and remedial liability allocation support for two major industrial clients in the states of New York, New Jersey, and Indiana. The overall purpose of these projects was to identify potential PRPs and rank them by estimated contribution in relation to one another. Based upon the information gathered during this work (e.g., volumes released, parameter toxicity, geographic location), supported the development of allocation models and the approach for determining estimates of the portion of remedial liability associated with each PRP.

**Edwards Air Force Base (EAFB) and NASA CERCLA Site, California.** NRDA and remedial NEBA negotiations. Mr. Nicolette provided NRDA and remedial NEBA support to EAFB as the responsible party at this site. Joseph developed an overarching CERCLA NRDA and NEBA strategy to EAFB and participated in agency negotiations. Major issues were related to groundwater and surface soil contamination. A NEBA was used to demonstrate that the presumptive pump and treat remedy would provide no net benefit to the public. A less intrusive MNA alternative was instituted and reduced project costs by \$65 million.

**Alabama, Marshall Space Flight Center.** NRDA, NEBA, and site remediation of groundwater contamination at NASA Marshall Space Flight Center CERCLA Site in Alabama. Mr. Nicolette provided oversight of a NRDA for the NASA Marshall Space Flight Center in Huntsville, Alabama. Joseph assisted in coordinating the assessment with the natural resource trustees and provided technical support for determining the potential levels of injury and potential scale of compensatory restoration. This project also entailed the use of NEBA to evaluate potential remedial alternatives associated with the site.

**Texas: For Region 6 USEPA, Joe supported the conduct of NEBAs to evaluate remedial alternatives at two orphan sites in Texas. The NEBAs were used to demonstrate the benefits/impacts associated with remediation. These are described below.**

NEBA for USEPA: Jasper Creosoting Company Superfund Site, Texas: An ecological risk assessment (ERA) for a wetland indicated low to medium risks for benthic invertebrates and a subset of upper trophic level receptors associated with exposure to dioxin and polycyclic aromatic hydrocarbons in sediment. Mr. Nicolette supported the development of a NEBA for USEPA Region 6 to quantify the net present value of the ecological services associated with no further action and six remedial alternatives involving monitoring, phytoremediation and combinations of full removal, partial removal and wetland enhancement. The NEBA demonstrated that monitored natural attenuation coupled with phytoremediation would provide the greatest net environmental benefit at the least cost and decrease ecological risks over time. The cost of this alternative was estimated to be more than \$2 million less than the most intrusive remedy.

NEBA for USEPA: State Marine Superfund Site, Texas: Joe supported the development of a NEBA for the USEPA to evaluate remedial alternatives for marginal ecological risks to benthic invertebrates identified in intertidal sediments. The NEBA results indicated that the loss of ecological services associated with no further action would be minor, if injury was occurring, and that the intrusive remedy would create a greater net ecological service loss because of





impacts to habitat. In this case, no further action was selected as the preferred alternative as the NEBA demonstrated that expenditure of more than \$6 million on sediment removal would not be protective of the environment.

**Troutdale Superfund Site, Oregon – CERCLA, NEBA, CWA, NRDA.** Joseph provided strategic advice regarding the evaluation of remediation options for a 16-acre NPDES process water pond (“the Lake”). Regulatory agencies stated a desire to declare the pond a Water of the State. Such a determination would have eliminated the client’s ability to use the pond as part of the plant’s NPDES wastewater management system. This would have required closing the plant or constructing a replacement storm water treatment system. Joseph supported a collaborative negotiation process that resulted in integrating pond remediation, continued pond use for NPDES purposes, plant storm water system upgrades, and an informal settlement of NRD claims.

**Confidential Railroad, Litigation Support** (Utah, Nevada, Colorado). Joseph was retained by a major railroad to support a litigation case. Joe Nicolette served as a technical expert for the railroad providing expertise related to the environmental effects of chemical releases to the environment (tanker car releases associated with derailments along multiple sites: diesel and sulfuric acid releases) and the NRDA process. He evaluated multiple sites regarding NRDA liability and provided strategic advice to the client regarding potential liabilities. This case was settled prior to deposition.

**Clooney Loop, Louisiana.** Assisted in development of a net environmental benefits analysis to demonstrate that a less intrusive remedy for ethylene dichloride coupled with wetlands restoration resulted in greater environmental benefit than a dredging remedy.

**Confidential Client, Los Angeles Harbor, California – NRDA.** Joseph assisted in an in-depth statistical analysis of sediment toxicity PCB and DDT concentrations. This project entailed a thorough analysis of sediment concentration threshold data and the applicability of these data to represent thresholds in sediments of the Los Angeles Harbor area. This analysis was conducted to provide a sound scientific basis to refute the apparent effects threshold (AET) levels developed by a NOAA expert witness.

**Statistical Analysis, Lower Bayou d’Inde and Calcasieu River Estuary.** Joe examined the spatial and temporal trends of hexachlorobenzene, and hexachlorobutadiene (HCB and HCBd, respectively), PCBs, and mercury in sediments and biological tissues in these waterways. Evaluated trend data in response to National Oceanic and Atmospheric Administration (NOAA) comments regarding analysis of the data. These data will be used in creating a proposed restoration-based compensation approach for the site using NEBA, HEA, and Restoration Options Analysis (ROA).





## **Project Approach – “Begin with the end in mind”**

Our approach in implementing this project is to “begin with the end in mind”. That is, it is important that the project meet the goals of the PRPs, the environment, and the federal and regulatory stakeholders. As such, the overarching project goal will be the development of a solution that effectively balances the risks, benefits, and tradeoffs of the final solution while gaining agency endorsement and managing cost.

As we will begin with the end in mind, one of our first actions is to develop a project strategy that will lay the foundation to meet the overall project goal. As such, we will emphasize the up-front scoping process, the value of up-front planning, scheduling and participation in site visits, historical site information and data reviews, with subsequent data synthesis and evaluation. These actions will serve as the foundation for development of the project strategy.

Secondly, within our approach, EPS is committed to providing an efficient organization for the project, standard delivery processes to manage project work, and innovative technical approaches that serve to meet project goals, thereby delivering an outstanding product.

We will:

- Scope and develop exceptional work plans;
- Clearly identify team roles and responsibilities;
- Conduct work within a clear project delivery process, and
- Continuously monitor the progress of
  - Stakeholder relationships;
  - Safety performance;
  - Team performance;
  - Cost/schedule/budget;
  - Deliverables;
  - Quality; and
  - Plan for change.



## OU2 Proposed Project Structure, Task Leads, Deliverable Leads and Supporting Staff







## Analytical Laboratory Considerations

EPS has contracted with many environmental sampling laboratories as part of their CERCLA and RCRA work in Region 4. These labs have included AES, ALS, Pace Analytical, plus others. The laboratory to be used will depend upon the analyses required. We will demonstrate, as we have had to do for other sites, that the laboratory and type of laboratory analyses that will be utilized during Site Characterization meets the specific QA/QC requirements and the DQOs as specified in the SAP. This demonstration will include use of methods and analytical protocols for the chemicals of interest, in the media of interest, within detection and quantification limits consistent with both QA/QC procedures and DQOs approved by the EPA in the QAPP for the Site. We will also provide assurances that the EPA has access to laboratory personnel, equipment and records for sample collection, transportation, and analysis. We will also submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications at the request of the USEPA.

In addition, we will provide data packages equivalent to those generated in the EPA Contract Laboratory Program (CLP) and will have the laboratory provide analysis of performance samples (blank and/or spike samples) in sufficient number so that USEPA can determine the capabilities of the laboratory. Any laboratory that we will use, will follow a documented Quality Assurance Program which complies with ANSI/ASQC E-4 1994, Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs, (American National Standard, January 5, 1995) and EPA Requirements for Quality Management Plans (QA/R-2) (EPA/240/B-01-002, March 2001) or equivalent documentation as determined by the EPA.

## Health and Safety

EPS is dedicated to protecting the health and safety of its employees. We have established a Health and Safety Program Plan to prevent injuries and illnesses in our workplace. As a consultant company, development of a successful program is not a simple process since our workplace is ever changing. In many instances, we are asked to perform services at locations that we have never visited before. To accomplish this task, two types of health & safety plans have been developed by EPS that apply to any type of project or service that we may offer. Prior to beginning each project, the appropriate health & safety plan is tailored as needed to ensure a safe working environment for our employees.

Employee involvement at all levels of the company is critical for our program to be successful. Each employee shall acknowledge the Company's safety policy, which states:

- Standards of safety, health and welfare must be maintained at the highest level.
- Performing tasks in a safe manner on project sites is fundamental to operational efficiency.





- Statutory obligations are minimum standards for which all employees of the company are responsible, and the aim must be to attain higher standards.
- No "shortcuts" are to be taken where safety is compromised.
- Employees shall not perform any task unless they believe it is safe to do so.
- Each employee has the authority to immediately stop all work being performed by our teams or subcontractors if they believe that the work is being conducted in an unsafe manner.

## Quality Assurance and Quality Control

EPS institutes a comprehensive quality assurance and control program. This program extends through all phases of the project including documentation development, field data collection, analytical sample analysis, database development, data input, data analysis, and data reporting.

The Project Coordinator is responsible for the overall quality of the work conducted throughout all phases of the project. This includes making sure that the appropriate professionals and QA/QC procedures are in place at each stage of the project. The work will be conducted using a team approach based upon maximizing the value of the talents of the multidisciplinary team. In addition, periodic audits will be conducted during various phases of work to ensure quality and maintain any corrective actions if needed.

A schedule for the entire assignment will be developed and reviewed by the team members and documented to make sure that everyone is on the same page.

The Project Coordinator and the Senior Technical Advisor will be responsible for reviewing all documents, reports, and other deliverables or distributed items.

Early in his career, Joe Nicolette served as the QA/QC Officer for the Adirondack Lakes Survey Corporation (ALSC). He managed and developed the QA/QC program for this 5-year study of over 1,700 lakes in the Adirondack region. The program encompassed the development of biological, chemical, and physical data and necessary field and database QA/QC programs. He will work with EPS staff, primarily Marie Weber-Goeke, to develop the QA/QC program for this project.

Our Quality Management Plan (QMP) is provided as **Exhibit 4**.



# **Exhibit 1**

## **GIS & Environmental Data Management**



## ***Exhibit 1: GIS & Environmental Data Management***

Our experienced consultants follow a proven, formal design process to identify the end-user's requirements. One of our strengths is its ability to convert and manage large volumes of data into a normalized relational database structure where all records are formatted and categorized during validation to be stored in standardized tables, while at the same time retaining original values. The database is designed to be complete, efficient, accurate, flexible and stable. A front-end database can be created for easier data retrieving and manipulation. Serving as the data library, this is then used to extract data for specific evaluation and mapping needs in a Geographic Information System (GIS). EPS believes in the client value for all our staff to be proficient in the use of both applications, and have invested in training and hardware/software to accomplish this goal.

EPS is well versed in the popular commercial database systems such as EQUIS and Locus Technologies. EPS staff have consolidated databases from various formats into a single, consistent format, and have exported databases specific to other stakeholder needs. EPS prefers to use of Microsoft Access as the primary database application for all projects, as it allows full flexibility to specific project needs (often the case for ecological data).

The typical EPS Access project database is managed as three separate databases: A "Build" database used for data validation, a "Master" database that stores data, and a "Main" database used by end- users. This structure maintains the database integrity and avoids inadvertent overwriting of data.

Data is tracked using a document tracking library, a database encompassing all documents, including historical ownership data, analytical sample data from laboratories, close out reports, company reports, EPA and other agency reports, investigations, actions plans, meeting notes, etc., associated with the project. Each document is assigned a box number that corresponds to a physical location in the document archive. For records with hard copies, a field in the database stores the box number where the records are physically located.

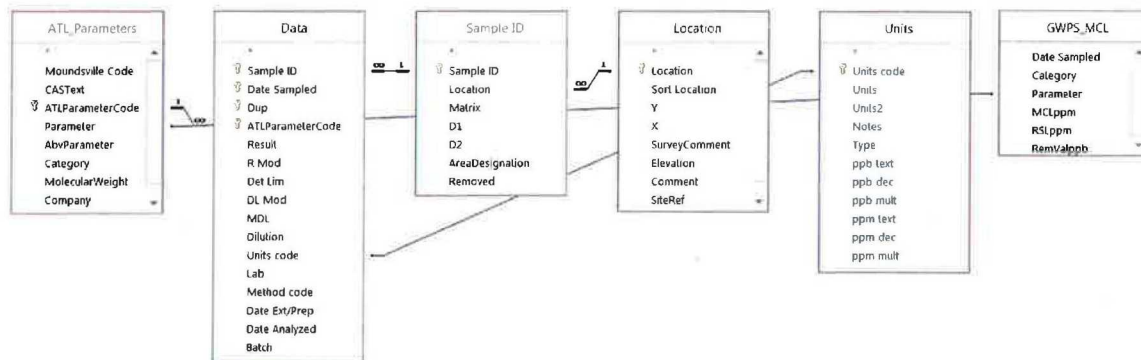
The database is a normalized relational database. Normalization in general terms means to put something in a standard state. Through normalization, a database is designed to contain all data necessary for the purpose the database is to serve, have as little redundancy of records as possible, permit efficient updates of the data, and avoid losing data unknowingly. Structured tables are created to store every piece of data. Each table is made up of columns or fields, which only store a certain data type. In other words, a field can only store either a number, a piece of text, or a date.

A relational database is one in which multiple tables are used to store unique information only once. Each table is linked or related to another by a common field. Another important aspect of a relational database is the need to avoid duplicate



record entries. To prevent a duplicate entry, each table is given a key field or set of fields that define a unique record. This key field serves as an index for the database.

The database is a living database, meaning that its structure is modified when a new table or field is needed. The preexisting data is not modified, but rather built upon.



New data records are validated and added to the Master database. New records are added by the Database Manager (DM) exclusively in the Build database, which stores all temporary tables and queries used to validate electronic records, to prevent addition of data to the Master database that has not been "cleaned". The cleaning process is similar to an assembly line: Raw or "dirty" electronic data is imported by the DM into the Build database and placed into a temporary table, thoroughly inspected to meet quality control criteria, encoded, inspected again, and finally added to the Master database. The goal of the validation process is to catch any errors or inconsistencies within the data itself and to ensure proper encoding of values in order to maintain a standard format.

The Environmental Data Model incorporates hydrogeologic and contaminant information, which can then be used and visualized within the project-specific GIS. The GIS allows unlimited data theme overlays to facilitate the most completed and accurate interpretation of the information. The sources could be a combination of aerial images, field observations, CAD drawings, and topographic maps. EPS staff are trained in the use of mobile GIS-based survey equipment.

The GIS will be developed to the client's needs and can be optimized or automated to provide immediate productivity gains. The GIS data can be showing three-dimensional visualization models and groundwater flow and transport models. After model development, the integrated information which may include wellhead protection areas, contaminant plumes, and water balance information, can be used for remediation plans, public presentations, or incorporated into land use policies.

### **Compatibility with the required USEPA DART Database System**

The USEPA SOW states that site information and data shall be managed, evaluated, and reported using an Electronic Data Deliverable (EDD) in the EPA's Data Archival and ReTrieval (DART) program following the EPA's Environmental Data Submission Guidance (SESDGUID-106, most recent revision).

EPS staff have worked hand in hand with the USEPA database personnel over the past several years on the incorporation of data into EPA's system for several sites. Mrs. Weber-Goeke, our database management expert, is an active member and participant on the monthly EPA Region 4 data management team conference calls. Mrs. Weber-Goeke has been submitting environmental data to the EPA Region 4 database (Data Archival and ReTrieval - DART). This database is Region 4's main repository for storing Superfund data, which includes locational, geological and analytical data from Superfund sites across the Region. EPA Region 4 has implemented EQUIS version 6.2 and upgraded the new EPAR4.xse format file, of which we are experts in communicating between the systems.

### **Database Management and GIS Case Studies**

The following case studies present selected database management projects:

#### ***LCP Chemicals Superfund Site, Operable Units 1 through 3, EPA Region 4***

Consisting of approximately 500,000 chemical records from over 15,000 samples taken from 1970 to 2012 covering more than 200 square miles surrounding Brunswick, Georgia, the LCP database was created by EPS to store environmental data and to facilitate the analysis of the environmental quality of the LCP Brunswick Study Area. All records are formatted and categorized during validation to be stored in standardized tables, while at the same time retaining original values; this database does not store calculated values. Rather, EPS has created customized queries specific to various computation and analysis needs of the project. All OUs are stored in the database (upland soils, groundwater, and saltmarsh sediment, biota, and toxicological data). EPS has trained outside stakeholders in the use of the database including personnel from EPA Region 4 and the Georgia EPD.

#### ***LCP Chemicals Superfund Site EPA Region 4 Fish Consumption Database***

EPS has conducted large-scale shellfish and finfish collection throughout the entire Turtle River estuary for developing human consumption guidelines, published by the Georgia Department of Natural Resources (DNR). The survey was performed according to a Sampling Quality and Assurance Plan prepared by EPS and approved by the DNR. Primary chemicals of concern included mercury (total mercury was evaluated) and polychlorinated biphenyls (PCBs). Sampling involved 9 geographic zones and 11 target fish/finfish species. Various attributes were determined and documented including length, weight, gender, and age. An Access database representing the concentrations of mercury and PCB in fishes was created. The results were presented in a detailed format that was consistent with the format of previous reports of seafood contamination in the area (GDNR, 1995a, 1995b; U. S. FWS, 1997). In addition, emphasis was placed on



comparing seafood contamination in the evaluated zones and documenting changes in contamination during the period of 1991 – 2002 in a front-end database, that was built by Mrs. Weber-Goeke, and used by Georgia EPD, EPA Region 4, and the US Fish and Wildlife Service.

#### ***LCP Chemicals Superfund Site EPA Region 4 NRDA Study Area Database***

A Natural Resource Damage Assessment (NRDA) database's content, design, and quality control procedures were created by Mrs. Weber-Goeke in collaboration with NOAA, US EPA Region 4, and the US Fish and Wildlife Service. Consisting of approximately 30,000 chemical records from over 5,000 samples taken from 1970 to 2003 covering more than 200 square miles surrounding Brunswick, Georgia; the NRDA database was created to store environmental data and to facilitate the analysis of the environmental quality of the LCP Brunswick NRDA Study Area. Additional data records from the EMAP National Coastal Database have recently been added for local area and regional assessment of dioxin-furan and PCB congener "fingerprints". The database also contains computational queries to support a Mean Sediment Quotient (MSQ) damage assessment.

#### ***Ward Transformer Raleigh, North Carolina - Evaluation of Estimated Remedial Action Cost and Data Gaps Analysis***

Approximately 7,000 sediment sampling records from the Remedial Action Investigation were entered into a relational database (MS Access) and Geographic Information System (GIS – ArcMap version 9.2) as part of this work assignment, to allow a more rigorous examination of the nature and extent of PCB contamination in OU1. This allowed mapping of the contamination distribution and the creation of charts and summary statistics to evaluate the nature of the contaminated condition. Data gaps analysis was also performed to support a sampling design for additional PCB delineation in a large stretch of the floodplain setting. Ultimately the data were used in a refined estimate of remediation costs improving upon the rigor and precision of the cost estimate provided in the FS/ROD.

#### ***Colonial Pipeline Company EDMS***

Colonial Pipeline Company EDMS project consisted of two main components, developing an environmental database and developing a Geographic Information System (GIS). Ms. Weber- Snapp designed and streamlined the management, evaluation, and reporting of site assessment and remediation data. The EDMS is a Microsoft Access based system that stores and manipulates soil, groundwater, surface water, well construction, and remedial performance monitoring data. The EDMS contains automated queries and report functions for efficient data evaluation, presentation, and linking to GIS.

#### ***Gulf of Mexico Baseline Database System Development - Deepwater Horizon***

Based on his experience in NRDA combined with his large scale relational database training, design, and management, Joseph Nicolette was assigned to serve as technical lead for the development of a baseline information management system

incorporating ecological, chemical, physical, socioeconomic, and GIS mapping data in the Gulf of Mexico (2010-2015). This database system was used to evaluate the potential for natural resource damages associated with ecological and human use services in the Gulf of Mexico, and incorporated data from Florida, Alabama, Louisiana, Mississippi, and Texas.

**USEPA Acid Deposition and Fisheries Populations in the Northeast U.S.**

Joseph designed this database system that contains chemical, physical and biological data on fish populations potentially impacted by acidic deposition. The development of this complex database required integration and coordination of multiple databases across multiple U.S. states and development of a database structure to allow data transfer. The database was used by the USEPA in evaluating acid deposition. Joseph developed the database structure of the system.

***Adirondack Lakes Acid Deposition Data Management System.***

This is a nationally recognized database which incorporated physical, biological and chemical data associated with over 1,700 lakes in New York State. The database was funded by the State of New York Department of Environmental Conservation (NYDEC) and the Empire State Electric Energy Corporation (ESEERCO). The Adirondack Lake database was used primarily for acid deposition assessment by the EPA and the National Acid Precipitation Assessment Program (NAPAP). Joseph developed the database structure, programming and sampling programs used to populate the system.



## **Exhibit 2**

### **Project Team Bios**

# Joseph Nicolette

## Managing Partner and Senior Principal

### Contact

(678) 336-8554 Office Direct  
(678) 451-8288 Cell  
[jnicolette@envplanning.com](mailto:jnicolette@envplanning.com)

### Areas of Expertise

Net environmental benefit analysis (NEBA) for alternative decision-making, examples include:

- Site remediation alternatives analysis
- Land development and asset management analysis
- Habitat equivalency analysis (HEA)

Natural resource damage assessment (NRDA) and resource economics analysis

Spill response tactical planning, emergency response and post-spill assessment

Permitting, mitigation and compensatory restoration alternatives analysis

Ecological and human health risk characterization

Environmental assessment oversight, including agency relations and liability management

Litigation Support

Fisheries and aquatic ecology

Environmental sustainability and stewardship demonstration

Complex database design and management

### Credentials

M.S. Fisheries, 1983. University of Minnesota

B.S. Environmental Resources Management, 1980.  
Penn State University

### Professional Accreditations

Certified Fisheries Scientist, no. 2,042, 1992

Scientific Information Retrieval (SIR) Database  
System Design and Management

OSHA 40-Hour HAZWOPER

### Experience

Joseph Nicolette has over 30 years' experience in the environmental consulting field with a focus on site risk management, client project coordination and agency relations, remediation alternatives analysis, NRDA, NEBA, ecosystem service valuation, and aquatic ecology. He is a Senior Principal and Ecosystem Services Practice Leader at Environmental Planning Specialists, Inc. (EPS)



Joe has made demonstrated contributions to the development of NEBA and NRDA approaches in the United States and Internationally. Joe co-authored the first formalized framework for Net Environmental Benefits Analysis (NEBA) for remediation or restoration of contaminated sites that is recognized by the USEPA, the USEPA Science Advisory Board, and NOAA. He pioneered the HEA methodology used in ecological service analysis in NRDA before HEA was codified into NRDA regulations.

He provides strategic advice and oversight for projects to help balance the risks, benefits and tradeoffs associated with competing alternatives (e.g., remedial actions; spill response actions; site permitting actions, mitigation and restoration actions; land management actions; offshore decommissioning actions, etc.). His role has been to provide technical direction and assist clients in coordinating and negotiating with Federal, State, and local Stakeholders.

Joe has served as the Project Coordinator and/or risk management lead on behalf of the responsible party at multiple Superfund sites. He has experience with sites in EPA Regions 2, 3, 4, 5, 6, 8, 9 and 10.

He has served as an expert witness on multiple litigation matters, primarily involving natural resource issues associated with chemical releases, spill response, NRDA, NEBA, risk characterization and remedy implementation, and NEBA.

He has contributed to multiple environmental assessments of oil releases from the Exxon Valdez through the Deepwater Horizon Incident. He has been involved in numerous (100+) remediation, NEBA, NRDA, and ecosystem service valuation related projects across 30 U.S. states as well as project work, presentations, and workshops in over 15 countries.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Kirk Kessler, P.G.

## Managing Partner and Senior Principal

### Contact

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(678) 336-8544 Office Direct  
(404) 307-2677 Cell  
[kkessler@envplanning.com](mailto:kkessler@envplanning.com)

### Areas of Expertise

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CERCLA and RCRA – design and implementation of large, complex site characterization and remediation programs

State Superfund and Voluntary Remediation Programs (GA, PA, TX, AL, TN)

Natural Resource Damage Assessment and Compensatory Restoration

Large due diligence and environmental reserves portfolio evaluation

Spill Response

Human health and ecological risk characterization

Conceptual Site Model development

Numerical computer hydrologic modeling

Large project database development and Geographic Information Systems

Data mining and interpretation

### Credentials

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M.S. Hydrogeology, U. of Toledo, 1985

B.A. Geology, Miami University, 1982

### Professional Accreditations

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Professional Geologist: Georgia, Kentucky, Pennsylvania, Virginia, Tennessee, Louisiana.

Various short courses on computer modeling

OSHA 40-Hour HAZWOPER

CPR and First Aid

### Experience

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Kirk Kessler, the firm's Remediation Practice Leader, has practiced within the CERCLA and RCRA regulatory area (and various state-lead programs)



since the mid-1980's. He co-established the CERCLA Program Management intra-company department during his early career, serving under the leadership of former EPA Administrator Mr. Lee Thomas (served under President Reagan). Mr. Kessler's expertise and experience span a wide range of project types, regulatory frameworks, and project size. For example: he has served individual members of RP groups in cost allocation; he has served RP groups in interactions with EPA during Proposed Plan and Record of Decision development; he has served as Project Manager and Technical Director for a variety of sites involving time-critical removal actions, non time-critical removal actions, RI/FS and RD/RA. He understands the intricacies of these regulatory programs and combined with his strong technical competency and strategic/forward planning, Mr. Kessler delivers a win-win outcome for both client project managers and regulatory stakeholders alike.

Mr. Kessler also provides expertise in the conduct of Net Environmental Benefits Analysis (NEBA), a quantitative comparative analysis methodology with applications in coal ash basin remedial alternatives evaluation and offshore oil & gas infrastructure decommissioning options evaluation.

Mr. Kessler has led the study design, implementation, and data evaluation/reporting for the development of State Fish Consumption Guidelines for a 13 square-mile estuary in coastal Georgia over the last 15 years. This program involves collection, identification, and processing of hundreds of fish specimens comprised of 11 target species.

Mr. Kessler also serves as Expert Witness on numerous litigation matters, primarily involving the evaluation of chemical transport and fate in the environment. He also consults on matters involving pollution insurance claims.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Timmerly Bullman, PhD, P.E.

## Principal

### Contact

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(678) 336-8545 Office Direct  
(678) 592-3906 Cell  
[tbullman@envplanning.com](mailto:tbullman@envplanning.com)

### Areas of Expertise

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Project management for characterization and remediation  
Human health and ecological risk characterization  
Complex database and GIS design and management

### Credentials

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Ph.D. Environmental Eng., Georgia Tech, 1999  
Minor in Public Health, Emory University  
M.S. Environmental Eng., Georgia Tech, 1997  
B.CE. Civil Engineering, Georgia Tech, 1995  
B.A. German Studies, Emory University 1995  
National Science Foundation Fellow

### Professional Accreditations

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Professional Engineer: Colorado, Georgia, Montana,  
New Mexico, North Carolina, Oklahoma, Wyoming  
OSHA 40-Hour HAZWOPER

### Experience

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Dr. Bullman is proficient in a variety of areas of environmental consulting. She has managed multi-million-dollar soil and groundwater remedial actions. She has overseen projects with USEPA, USEPA Region 4, and EPD and has familiarity with guidance for other states' risk programs. She has worked and negotiated with regulators in the EPD's VRP, RCRA, HSRA, and Brownfield's programs as well as with the USEPA's PCB (TSCA) program.

As a project manager she is involved in strategic planning to balance the requirements of the regulatory authority and the needs of the client in a responsive, efficient and cost-effective manner. She has extensive experience developing and implementing project plans for characterizing the extent of soil and groundwater contamination, performing risk evaluations (traditional human health,



ecological and vapor intrusion), and performing groundwater modeling. She analyzes all of this information through a combination of a database management and three-dimensional geo-spatial analysis to determine appropriate remedial actions using a risk-based approach. She interacts closely with the client and regulators throughout the process and prepares all requisite documents for submittal to the agencies.

### Representative Projects

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#### **Federal (CERCLA) and State Superfund (HSRA)**

Prepared HSRA Release Notifications, Work Plans, Corrective Action Plans, and Compliance Status Reports (CSRs) for multiple sites (multiple electrical power sub-stations, an industrial landfill).

#### **Toxic Substances Control Act - USEPA**

Coordinated with USEPA Region 4 personnel in the TSCA program to determine applicability of TSCA to various projects (including multiple sub-stations and a former waste oil disposal pit at a copper wire manufacturing facility) under RCRA and HSRA.

#### **Resource Conservation and Recovery Act**

Developed RCRA Facility Investigation (RFI) Work Plans, RFI Reports, Status Reports, Risk Assessments, Corrective Action Plans, Corrective Action Effectiveness Reports, Interim Corrective Measure Plans and Reports, and/or Closure Certifications for multiple sites (multiple copper wire facilities, chemical manufacturer, and asphalt manufacturer).

#### **Voluntary Remediation Program - Georgia**

Submitted multiple applications to the VRP program, which included compiling and summarizing all historical information for the sites, developing conceptual site models, performing groundwater modeling and/or vapor intrusion assessments. Sites include an adhesives manufacturer, a pesticide and fertilizer manufacturer, dry cleaners, and a paperboard manufacturer.



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400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Aaron G.B. Williams, Ph.D.

## Principal, Geochemist

### Contact

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(678) 336-8537 Office Direct  
(319) 621-3490 Cell  
[awilliams@envplanning.com](mailto:awilliams@envplanning.com)

### Areas of Expertise

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Site assessment & conceptual site model development  
Geochemical evaluations  
Chemical fate & transport  
Remediation design & technology pilot studies  
Hydrogeologic model conceptualization  
Data mining, assessment & interpretation  
Geographic Information Systems (GIS)  
Spatial analysis & modeling

### Credentials

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Ph.D. Environmental Engineering and Science,  
The University of Iowa, 2004  
B.S. Biology, The University of Iowa, 1997

### Professional Accreditations

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Spatial Analysis & Decision Assistance Training  
OSHA 40-Hour HAZWOPER  
OSHA 8-Hour HAZWOPER Supervisor  
CPR and First Aid

### Experience

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Dr. Williams has seventeen years of research, site assessment, and remedial technology design and implementation experience. His cross-discipline background in environmental chemistry, engineering, and geologic sciences allows for a holistic evaluation of project sites with an emphasis on applying both conventional and novel approaches to achieve site objectives, including adapting or modifying nontraditional technologies to assess and support complex remedial projects. In this capacity, Dr. Williams leads or co-leads the evaluation and selection of remedial technologies for EPS and has completed numerous treatability and

pilot test studies that have resulted in value-added full-scale remedial implementations.



Prior to joining EPS, Dr. Williams completed an appointment with the U.S. Environmental Protection Agency's Office of Research and Development (ORD). His work with ORD focused on investigating and assessing novel technologies for sediment and soil remediation, with an emphasis on quantifying contaminant risk based on exposure potential as opposed to generalized contaminant concentrations that do not account for sequestered or mineralized (i.e., nonbioavailable) contaminant phases.

Site assessment experience includes soil, sediment, and groundwater investigations with an emphasis on presenting data in an informative GIS format. Modeling experience relevant to site assessment includes hydrogeologic modeling of solute transport, geochemical modeling, evaluation of natural attenuation processes for petroleum hydrocarbons and chlorinated solvents. Dr. Williams has experience with assessment and remediation for metals, PCBs, petroleum products and chlorinated solvents. Dr. Williams's experience also includes large-scale project review and due diligence to support property valuation and environmental reserves portfolio evaluation.

### Representative Projects

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Dr. Williams completed an evaluation of groundwater with respect to the source and causation of elevated metals concentrations near a closed landfill. Based on site data and groundwater remediation objectives Dr. Williams developed a novel groundwater remediation strategy to reduce dissolved metals concentrations in groundwater with successful pilot testing of the technology.

Dr. Williams assisted in development of a large-scale assessment of PCB transport by watershed processes adjacent to a former PCB transformer processing facility. The assessment and sampling strategy identified data gaps in the existing off-Property assessment, which altered probable remediation alternatives and risk assessment.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Sofie Weber-Snapp

## Senior Scientist

### Contact

---

(678) 336-8548 Office Direct  
(404) 368-3343 Cell  
[swebersnapp@envplanning.com](mailto:swebersnapp@envplanning.com)

### Areas of Expertise

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Technology – Word, Excel, Access, Coral Draw, QuatroPro, Wordperfect, ArcView/GIS, SESOIL Modeling, BIOSCREEN Modeling, EQuIS.

Leadership – Organized and led sampling and drilling teams in field environments.

Health & Safety

Public relations – Creation and presentation of various environmental reports for a wide variety of clients and to federal agencies, both foreign and domestic.

Field work – Prepare and perform various forms of soil, surface water, and groundwater sampling.

Analytical – Performed advanced analysis on professional and academic projects.

Environmental response to oil and chemical spills

National Pollutant Discharge Elimination System (NPDES) permitting

Hazards communication and the Global Harmonizing System (GHS)

### Credentials

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Masters of Soil, Water and Environmental Science, 1997. University of Arizona, Tucson, Arizona, USA.

University Diploma in Engineering, 1996. Mälardalens Högskola, Västerås, Sweden

Degree of Bachelor of Science in Engineering. 1995. Mälardalens Högskola, Västerås, Sweden

### Professional Accreditations

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GIS Certificate, 2003. Kennesaw State University, Atlanta, Georgia, USA.

OSHA 40-Hour HAZWOPER

Certified, Health and Safety Supervisor Training Course for Hazardous Waste.

Completed 8 hours Refresher of OSHA Hazardous Waste Training



40 hours Train-the-Trainer  
(Certification to train 40-hours, 8-hours OSHA classes)

### Experience

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Sofie Weber-Snapp has experience in multimedia characterization and environmental monitoring; hydrogeology and groundwater modeling; human health and ecological risk assessment; geostatistics; inorganic geochemistry; surface and borehole geophysics; and litigation support. She has extensive experience in developing and implementing project plans for characterizing the extent of soil and groundwater contamination and performing risk evaluations. She analyzes information through a combination of a database management and three-dimensional geo-spatial analysis to determine appropriate remedial actions using a risk-based approach.

Sofie has oil spill response, planning and assessment experience. She manage sample collection, coordination of sample results across agencies, and she provide GIS support.

Sofie has prepared numerous Storm Water Pollution Prevention Plans and negotiated NPDES Permits in multiple states. She has negotiated industrial NPDES permits including the establishment of dioxin limits. She prepares Emergency Action Plans and develops environmental compliance plans and training programs.

### Representative Projects

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Design and maintain large multi-media databases for use in corrective action and risk assessments (human health and ecological) for many projects. Use the databases in conjunction with geographic information systems (GIS)-based interactive tools to present and analyze the data. These tools are used to determine sampling plans for corrective action decision-making, to conduct risk assessments, and to facilitate meetings with the client and agencies.

Performed air emissions survey of several U.S. military facilities in Germany. This included field survey, during which complete inventories of all potential sources of air emissions were developed



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400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Marie Weber-Goeke

## Senior Scientist

### Contact

---

(678) 336-8547 Office Direct  
(404) 368-3313 Cell  
[mwebergoeke@envplanning.com](mailto:mwebergoeke@envplanning.com)

### Areas of Expertise

---

Technology – Word, Excel, Access, Coral Draw, QuatroPro, Wordperfect, ArcView/GIS, SESOIL Modeling, BIOSCREEN Modeling, EQUIS.

Leadership – Organized and led sampling and drilling teams in field environments.

Health & Safety

Public relations – Creation and presentation of various environmental reports for a wide variety of clients and to federal agencies, both foreign and domestic.

Field work – Prepare and perform various forms of soil, surface water, and groundwater sampling.

Analytical – Performed advanced analysis on professional and academic projects.

Environmental response to oil and chemical spills

National Pollutant Discharge Elimination System (NPDES) permitting

Hazards communication and the Global Harmonizing System (GHS)

### Credentials

---

Masters of Soil, Water and Environmental Science, 1997. University of Arizona, Tucson, Arizona, USA.

University Diploma in Engineering, 1996. Mälardalens Högskola, Västerås, Sweden

Degree of Bachelor of Science in Engineering. 1995. Mälardalens Högskola, Västerås, Sweden

### Certifications

---

GIS Certificate, 2003. Kennesaw State University, Atlanta, Georgia, USA.

OSHA 40-Hour HAZWOPER

Certified, Health and Safety Supervisor Training Course for Hazardous Waste.

Completed 8 hours Refresher of OSHA Hazardous Waste training



### Experience

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Marie Weber-Goeke has over 20 years' experience of multimedia characterization and environmental monitoring; hydrogeology and groundwater modeling; human health and ecological risk assessment; geostatistics; inorganic geochemistry; surface and borehole geophysics; and litigation support.

Marie develops site assessment including soil, sediment and ground water investigations with an emphasis on presenting data in an informative GIS format using Access or EQUIS data as input.

Marie has oil spill response, planning and assessment experience. She manage sample collection, coordination of sample results across agencies, and she provide GIS support.

Marie has prepared numerous Storm Water Pollution Prevention Plans and negotiated NPDES Permits in multiple states. She has negotiated industrial NPDES permits including the establishment of dioxin limits. She prepares Emergency Action Plans and develops environmental compliance plans and training programs.

Marie has experience in determining the applicability of HSRA risk reduction standards (Type 1-4). Calculate human health risks for all the contaminants at the site according to HSRA requirements. Statistically determined (and apply) soil background concentrations using site data and historic background data from other neighboring HSRA facilities and publications.

### Representative Projects

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Design and maintain large multi-media databases for use in corrective action and risk assessments (human health and ecological) for many projects. Use the databases in conjunction with geographic information systems (GIS)-based interactive tools to present and analyze the data. These tools are used to determine sampling plans for corrective action decision-making, to conduct risk assessments, and to facilitate meetings with the client and agencies.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Alex Testoff, P.E.

## Project Engineer

### Contact

---

(678) 336-8536 Office Direct  
(443) 745-6247 Cell  
[atestoff@envplanning.com](mailto:atestoff@envplanning.com)

### Areas of Expertise

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Hydrogeology  
Remediation/Corrective Action Implementation  
Environmental Site Assessments  
Environmental Database Design  
Data Mining, Assessment & Interpretation  
Geographic Information Systems (GIS)

### Credentials

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M.S. Environmental Engineering, Johns Hopkins University, 2014

B.S. Environmental Engineering, The Ohio State University, 2013

### Professional Accreditations

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Professional Engineer: Georgia No. 042109  
OSHA 40-Hour HAZWOPER  
OSHA 8-Hour HAZWOPER Supervisor  
CPR and First Aid

### Experience

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Alex Testoff is a registered professional environmental engineer with 4 years of experience in environmental consulting. He received his Bachelor's Degree in Environmental Engineering from Ohio State University and his Masters in Environmental Engineering from Johns Hopkins University.

Mr. Testoff has implemented a variety of corrective action plans, including those involving soil excavation, in-situ chemical oxidation, in-situ bioremediation, air sparging, soil vapor extraction, and soil blending. He has also conducted numerous soil vapor investigations and participated in the design and implementation of sub-slab depressurization systems to mitigate vapor intrusion



risks. Mr. Testoff also has experience in conducting surveys and performing environmental sampling in emergency response situations (i.e., oil/chemical releases).

Site assessment experience includes soil, sediment, and groundwater investigations involving metals, PCBs, dioxins/furans, petroleum products, and chlorinated solvents with an emphasis on presenting data in an informative GIS format.

In addition, Mr. Testoff has: (i) participated in the development of State Fish Consumption Guidelines for a 13 square-mile estuary in coastal Georgia (program involves collection, identification, and processing of hundreds of fish specimens comprised of 11 target species), (ii) assisted in assessments and remedial actions under the Brownfields Program to provide for pre-real estate transaction certification, (iii) conducted environmental due diligence reviews, including Phase I/Phase II ESAs for commercial and industrial properties, and (iv) assisted in the preparation of chemical inventories, Spill Prevention, Control and Countermeasure and Stormwater Pollution Prevention plans.

### Representative Projects

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**NPL Site, Brunswick, Georgia.** Mr. Testoff assisted in the preparation of work plans in support of Remedial Investigation / Feasibility Study (RI/FS) reporting for the two Operable Units:

**Gasoline Release, Maylene, Alabama.** Mr. Testoff responded to a 350,000-gallon gasoline and conducted an investigation into its impacts to surface water bodies and wildlife in the area.

**Active Pesticide Manufacturing Plant, Cordele, Georgia.** Mr. Testoff supervised a 4,400 cubic yard of soil excavation to remove chlorinated pesticides, organophosphorus and installation of a granular activated carbon treatment system to remove ethylene dibromide from groundwater.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Brian McGann

## Staff Ecologist

### Contact

---

(678) 336-8553 Office  
(678) 446-2071 Cell  
[bmcgann@envplanning.com](mailto:bmcgann@envplanning.com)

### Areas of Expertise

---

Aquatic ecology  
Limnology  
Hydrology  
Plant biology  
Analytical Chemistry  
Water-quality monitoring  
Multivariate data analysis  
Geographic Information Systems (GIS)

### Credentials

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M.S. Environmental Science and Management, 2018  
Graduate Certificate in Hydrology, 2017, School of  
the Environment, Portland State University  
(Portland, OR)

B.S. Ecology, 2013, Odum School of Ecology,  
University of Georgia (Athens, GA)

### Professional Accreditations

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OSHA 40-Hr HAZWOPER  
CPR/First Aid/AED Certified

### Experience

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Brian McGann is a Staff Ecologist with over five years of experience in ecological investigations. Some examples of contributed projects include: analyzing non-target community responses to pesticide applications, evaluating forest demographic responses to simulated disturbances, establishing a forest-dynamics plot in an under-studied ecoregion, expanding aquatic bio-monitoring programs, prioritizing restoration efforts through aerial survey truthing, and projecting future below-ground symbiotic relationships. He has field experience in the Southeast, the Pacific Northwest, Central America, and the Caribbean, among other regions. His aquatic field sampling experiences include sampling



creeks, rivers, and lakes for abiotic parameters and biotic components ranging from zooplankton tows to electro-fishing. Brian is fluent in Spanish. He has terrestrial and aquatic taxonomic identification expertise spanning multiple taxonomic kingdoms. His laboratory expertise is centered around environmental contaminant analysis, which includes classical training in wet chemistry analytical methods as well as instrumental methods in Spectroscopy and Mass spectrometry. Mr. McGann is considered an expert in surface water hydrology, has lectured at a graduate level, and is on path to becoming a professionally accredited Hydrologist. He is experienced with database management, statistical analysis using R, and GIS evaluation in ArcGIS.

In addition, Brian McGann has: mapped boring logs using Strater for environmental and geotechnical reports, prepared chemical inventories for Health and Safety plans, and prepared topographic mapping assessments for Storm Water Pollution Prevention Plans.

### Representative Projects

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**NPL Site, Brunswick, Georgia.** Mr. McGann assisted in the preparation of models and protocols for ecological risk assessment and habitat equivalency analysis in support of the Remedial Investigation reporting for the two Operable Units.

**Gasoline Release, near Helena, Alabama.** Mr. McGann is part of investigation to monitor attenuation of volatile organic compounds in surface water and sediment, in response to a release of several hundred thousand gallons of gasoline. He is an integral team member in the continued investigation into the impacts of this incident to surface water bodies and wildlife in the area.

**Former Manufacturing Plant, Milledgeville, Georgia.** Mr. McGann performed groundwater well sampling following the initiation of bio-remediation activities to reduce the toxicity of a released chlorinated solvent. He has also worked to evaluate the magnitude of spread of the contaminant plume into neighboring properties.



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400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Justin Vickery, P.G.

## Principal

### Contact

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(678) 336-8538 Office Direct

(404) 431-6521 Cell

[jvickery@envplanning.com](mailto:jvickery@envplanning.com)

### Areas of Expertise

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#### Georgia Brownfield Redevelopment

- Strong regulatory agency relationships
- Strategic assessment
- Creative approaches to compliance certification

#### Remedial alternatives analysis

#### Remedial Design/Implementation

#### Georgia HSRA and Voluntary Remediation

#### Georgia Hazardous Waste Program (RCRA)

#### Georgia UST Management Program

#### South Carolina Voluntary Cleanup Program

#### Due Diligence

### Credentials

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B.S., Geology, Georgia State University, 1998

### Professional Accreditations

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Registered Professional Geologist: Georgia, Florida

OSHA 40-Hour HAZWOPER

### Experience

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Mr. Vickery is a registered Professional Geologist in the state of Georgia with 20 years of environmental consulting experience. He began his career with a small environmental consulting company in Atlanta, Georgia working mainly on UST projects in Georgia and Alabama. These projects included establishing groundwater monitoring programs, conducting mobile free product recovery events, and design/install/O&M of active treatment systems. He then worked for an international engineering firm performing environmental work for large-scale industrial and petroleum pipeline clients. These projects included long-term hydrogeologic investigations, subsurface assessments, and remedial actions under multiple state regulatory agencies as

well as site assessments for multi-property industrial real estate transactions for Fortune 50 companies.



Currently, Mr. Vickery is a Principal Geologist and leads the Brownfields and Due Diligence Program at EPS and manages a multi-million dollar project involving a large-volume TCE release to soil and groundwater and a multi-tiered remedial approach. He has overseen projects, including regulatory enforcement and property transaction-driven projects, from design to implementation through research, strategic planning, and frequent communications with clients and regulators. He also works closely with environmental attorneys to assist clients with challenging legal matters. He has worked and negotiated with an array of GA EPD regulators on countless projects and has received regulatory closure through risk management for a number of clients and properties.

### Representative Projects

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Managed activities associated with a large volume TCE release at an industrial facility under the GA Hazardous Waste and VRP Programs, including strategic planning, annual budget generation, long-term cost projections, and assessment and remedial activities. Assessment activities included release area soil delineation, on and off-site vertical and horizontal groundwater delineation, and on a Completed assessments and remedial actions under the Brownfields Program to provide for pre-real estate transaction certification.

Conducted excavation activities under the Brownfield Program which included land disturbance and tree removal permitting through the City of Atlanta.

Managed and conducted environmental due diligence reviews, including Phase I/Phase II ESAs for commercial and industrial properties throughout Georgia and the Southeast and for multi-site/multi-state property transaction for Fortune 50 industrial clients.

Managed long-term groundwater monitoring programs under RCRA Hazardous Waste Permit requirement at multiple sites. This included periodic monitoring and well inspections and repairs.



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400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Debbie Bethea

## Senior Scientist

### Contact

---

(678) 336-8541 Office Direct  
(770) 714-9348 Cell  
[dbethea@envplanning.com](mailto:dbethea@envplanning.com)

### Areas of Expertise

---

EPCRA 312 (Tier II) and 313 (TRI/Form R) reporting  
Spill Prevention, Control, and Countermeasure  
(SPCC) Plans

Storm Water Pollution Prevention Plans (SWPPP)

RCRA hazardous waste rules, permits, and  
programming.

Hazards Communication and GHS

Environmental Site Assessment / Due Diligence

### Credentials

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Clemson University, M.S. Environmental Toxicology,  
1997

University of California at Davis, B.S. Environmental  
Toxicology, 1995

### Experience

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Debbie has more than twelve years of experience in the environmental consulting field. Her training is in the areas of environmental toxicology, risk assessment, and chemical fate and transport. Her experience encompasses human health and ecological risk assessment, project and field management, due diligence and compliance, health and safety, multimedia site characterization and environmental monitoring, and site characterization.

She has managed environmental compliance for numerous clients in Georgia as well as corporate clients with facilities across the U.S. Her work has included compliance audits, preparation of permits, written plans and training programs for federal and state required compliance for multiple media.

### Representative Projects

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Providing assistance to environmental managers at a variety of manufacturing facilities with ongoing compliance needs: agency communications,



preparation of compliance plans, testing and reporting, and environmental management systems. This includes preparation of SPCC, SWPPP, HWCP, HazCom and EAP plans and training programs for multiple facilities and interaction with representatives at the corporate level to prepare company-wide environmental policies.

Prepared all CERCLA Supporting Documents (SAP, QAPP, FSP, and HASP) as part of the Designed Engineering Evaluation/Cost Analysis (EE/CA) sampling program. The program was designed to delineate on-site impacts as well as ecological impacts to the nearby river for mercury and PCBs through a phased sampling plan. Ms. Bethea provided management and coordination of all sampling activities and participated in regulatory negotiations.

Supervised and implemented due diligence associated with purchase of numerous existing facilities nationwide. Services included Phase I ESA, asbestos surveys, lead-based paint surveys, lead in drinking water surveys, health and safety audits. A database management system was used to organize information to identify recognized environmental conditions and other ASTM information.

Ms. Bethea calculated human health risks for on-site contaminants according to HSRA requirements. She determined the applicability of HSRA risk reduction standards and statistically determined and applied soil background concentrations using site data and historic background data from other neighboring HSRA facilities and publications.



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400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Melissa Ferretti, P.E.

## Senior Engineer

### Contact

---

(678) 336-8532 Office Direct  
(954) 554-6430 Cell  
[mferretti@envplanning.com](mailto:mferretti@envplanning.com)

### Areas of Expertise

---

Subsurface remediation, design and pilot studies  
Georgia HSRA and Voluntary Remediation  
Remediation system operations and maintenance  
Field sampling activities (water, soil, air)  
Environmental regulatory compliance  
National Pollutant Discharge Elimination System (NPDES) permitting  
Hazards communication and the Global Harmonizing System (GHS)  
Spill Prevention Control & Countermeasure (SPCC) Plans  
Storm Water Pollution Prevention Plans (SWPPP)  
Hazardous waste generator compliance (RCRA)  
EPCRA 312 (Tier II)  
Phase I Environmental Site Assessments  
Net Environmental Benefits Analysis (NEBA)

### Credentials

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M.S. Civil Engineering, University of California, Los Angeles, 2012  
B.S. Environmental Engineering, Georgia Institute of Technology, 2010

### Professional Accreditations

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Registered Professional Civil Engineer, Georgia (PE042373)  
40-hour HAZWOPER Certification  
Envision® Sustainability Professional (ENV SP), Institute for Sustainable Infrastructure

### Experience

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Melissa Ferretti is an environmental engineer with more than 8 years of experience in the environmental sector. She received a Bachelor's Degree in Environmental Engineering from the Georgia Institute



of Technology in 2010 and a Master's Degree in Civil Engineering from the University of California, Los Angeles (UCLA) in 2012.

From 2010 to 2012, Melissa worked as a researcher in a UCLA laboratory studying metals toxicology before moving into environmental consulting.

Previous work has been in the fields of subsurface investigation and remediation for clients in the oil and gas, aerospace, and chemical industries.

### Representative Projects

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#### *Various Aerospace Industry Clients, California*

Oversight of groundwater monitoring activities and O&M for sites impacted with petroleum hydrocarbons, metals, and/or chlorinated solvents. Designed treatment systems, developed remedial investigation strategies, prepared reports, and analyzed laboratory and field data. Specific treatment systems included soil vapor extraction and pump-and-treat with granular activated carbon, air sparge, and directed groundwater recirculation.

#### *Various Aerospace Industry Clients, California*

Oversight of groundwater monitoring activities and O&M for sites impacted with petroleum hydrocarbons, metals, and/or chlorinated solvents. Designed treatment systems, developed remedial investigation strategies, prepared reports, and analyzed laboratory and field data. Specific treatment systems included soil vapor extraction and pump-and-treat with granular activated carbon, air sparge, and directed groundwater recirculation.

#### *Petroleum Pipeline, Southeastern U.S.*

Provide oil spill response and post-incident support. This includes collecting surface water and sediment samples, analyzing data, and determining cleanup recommendations. Large public and stakeholder interest due to the ecologically sensitive nature of the region. Help provide comprehensive ecological assessment of the spill zone and surrounding area.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Brian Goldman, P.E.

## Project Engineer

### Contact

---

(678) 336-8543 Office Direct  
(484) 553-3101 Cell  
[bgoldman@envplanning.com](mailto:bgoldman@envplanning.com)

### Areas of Expertise

---

Air permitting and compliance issues  
Title V Permitting  
Emission Inventory calculations  
EPCRA 312 (Tier II), 313 (Form R) reporting  
NESHAP regulations  
Spill Prevention Control and Countermeasure (SPCC) Plans  
Storm Water Pollution Prevention Plans

### Credentials

---

B.S. Environmental Systems Engineering, 2012  
The Pennsylvania State University, College of Earth  
and Mineral Sciences, University Park, PA

### Professional Accreditations

---

Professional Engineer: Georgia  
OSHA 40-Hour HAZWOPER  
OSHA 8-Hour HAZWOPER Supervisor  
CPR and First Aid

### Experience

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Brian has 5 years of experience in the environmental compliance and engineering fields. He has completed emission inventories, prepared Title V/SIP permit applications and completed regulatory and compliance reporting documentation for facilities in a variety of industries. Brian also has experience in preparing SPCC and SWPPP plans. He has participated in numerous projects ranging from soil and groundwater monitoring, sampling, and reporting to conducting Environmental Site Assessments. Brian also has experience conducting reconnaissance surveys and performing environmental sampling in emergency response situations (i.e., oil/chemical releases).



### Representative Projects

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Prepared Title V/SIP permit applications (initial, renewals, and modifications), including emissions inventories, Compliance Assurance Monitoring (CAM) plans, regulatory reviews, and proposed permit language.

Prepared Title V and NESHAP compliance reports, including Semiannual/ Quarterly, Annual Compliance Certifications, EPCRA 312 (Tier II), and EPCRA 313 (Form R).

Provides ongoing air quality recordkeeping, reporting, and permitting support for numerous clients in the automobile fabric, engineered stone, renewable energy, and wood processing industries.

Performed field analysis and sampling for soil and groundwater.

Analyzed and compiled data concerning groundwater monitoring, soil sampling, and remediation system performance following sampling.

Classified soils and developed boring logs for environmental and geotechnical reports.

Prepared Health and Safety plans for industrial facilities and EPS project sites.

Prepared Storm Water Pollution Prevention Plans and assisted with the development of a Storm Water Management Plan Database.

Previously responsible for Air Quality and Compliance for a natural gas transmission and gathering company. He was tasked with maintaining company-wide compliance with Federal and State Air Regulations in PA and NY.

Assisted in developing a Best Available Technology cost analysis for the use of oxidation catalysts, selective catalytic systems, and leak detection and repair, saving the company several hundred thousand dollars.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Rebecca McBride

## Project Engineer

### Contact

---

(678) 336-8550 Office Direct  
(480) 221-1594 Cell  
[rmcbride@envplanning.com](mailto:rmcbride@envplanning.com)

### Areas of Expertise

---

Air permitting and compliance  
Title V / SIP air permit application preparation  
Emission inventory calculations  
Air toxics modeling and impact assessments  
Greenhouse gas (GHG) emissions calculations and reporting  
California Off-Road Diesel and Large Spark-Ignition (LSI) regulations  
EPCRA 312 (Tier II) & 313 (TRI/Form R) reporting  
Spill Prevention, Control, and Countermeasure (SPCC) Plans  
Storm Water Pollution Prevention Plans (SWPPP)

### Credentials

---

M.S. Civil & Environmental Engineering, 2015.  
Carnegie Mellon University.  
B.S. Chemical Engineering, Magna Cum Laude,  
2014. University of Arizona.

### Professional Accreditations

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Engineer In-Training (EIT): Georgia

### Experience

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Rebecca McBride received her Master's Degree in Civil & Environmental Engineering from Carnegie Mellon University in 2015. Her primary area of practice is in the environmental compliance field, with a focus on air quality.

Ms. McBride provides air permitting and compliance support to clients. This includes Title V / SIP / Synthetic Minor permit applications, emissions inventories, regulatory reviews, air toxics impact assessments, periodic air compliance reports, monthly air emissions recordkeeping, and GHG emissions mandatory reporting.



Ms. McBride has experience delivering environmental compliance assistance to clients across multiple industries, including:

- Engineered wood products
- Recycled paperboard products
- Air conditioning manufacturing
- Wire coating
- Coil coating
- Railcar refurbishing
- Custom furniture manufacturing
- Transformers manufacturing
- Extruded aluminum parts manufacturing
- Solar cell manufacturing
- Hardwood flooring manufacturing
- Aircraft maintenance & coating operations
- Airport services

In addition to her air quality-related projects, Ms. McBride prepares EPCRA 312 (Tier II) and 313 (TRI/Form R) reports for facilities across several industries. She has also assisted in the preparation of SPCC and SWPP Plans.

### Representative Projects

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Prepares monthly air compliance records, periodic air compliance reports, annual emissions statements and emissions inventories, annual GHG mandatory reports, and annual Tier II and TRI/Form R reporting documentation.

Provides compliance assistance to airport services companies with the California Air Resources Board (CARB) mobile equipment compliance program, including off-road, large spark-ignition, and portable equipment registration and reporting. Projects have also included stationary source permitting and compliance assistance to meet CARB & District-specific requirements.

Reviews NESHAP and NSPS regulatory applicability.

Performed hazard reviews from safety data sheets as part of a hazards communication program update.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Cameron Lee

## Staff Scientist

### Contact

---

(404) 315-9113 Office  
(678) 849-4895 Cell  
[cllee@envplanning.com](mailto:cllee@envplanning.com)

### Areas of Expertise

---

Fisheries and Wildlife Sciences  
Groundwater, surface water, soil and sediment sampling  
Aquatic Ecology  
Forestry and Natural Resources  
Monitoring well installation oversight and soil core logging  
Installation, operation and maintenance of groundwater and soil remediation systems including chemical injection and soil vapor extraction  
Assist in the preparation of Storm Water Pollution Prevention Plans (SWPPP) and Spill Prevention Control and Countermeasure (SPCC) Plans  
Phase I & Phase II Environmental Site Assessment (ESA)  
Ecological Services  
Geographic Information Systems (GIS)

### Credentials

---

B.S. Fisheries & Wildlife Sciences, University of Georgia, 2016 (Athens, GA)

### Professional Accreditations

---

OSHA 40-Hr Health & Safety Training  
Current OSHA 8-Hr Refresher Health & Safety Training

### Experience

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Cameron Lee is a Fisheries and Wildlife Scientist with experience in managing and implementing a diverse range of projects. These include, but are not limited to, environmental restoration projects, groundwater and soil remediation, seafood surveys for consumption guidelines, site assessment and environmental monitoring. He is also experienced in



database support and GIS mapping for Spill Prevention Control and Countermeasure (SPCC) Plans, Storm Water Pollution Prevention Plans (SWPPP), and various general media sampling plans.

### Representative Projects

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#### ***Ecological Monitoring, Groundwater Monitoring NPL Site, Brunswick, GA.***

Participated in the development of State Fish Consumption Guidelines for a 13 square-mile estuary adjacent to the site. This project involved the collection, identification, and processing of hundreds of fish specimen comprised of 11 target species. This project also included site wide groundwater sampling as well as marsh well sampling.

#### ***Monitoring Well Installation, Various Sites – GA.***

Managed drilling contractors for monitoring well installation. Experienced overseeing DPT and Sonic methods. Installed shallow and intermediate wells, generated lithologic logs, and conducted sample collection.

#### ***Former Manufacturing Facility, Milledgeville, Georgia.***

Mr. Lee participated in source area groundwater remediation carrying out a combined bio-augmentation and stimulation strategy. Responsibilities include oversight of injection well install and implementation of the injection design. He also collected and logged soil samples with PID for the development of injection wells. He was also involved in the implementation and maintenance of biologically engineered remediation injections.

#### ***Gasoline Release, Helena, Alabama.***

Mr. Lee is part of an examination into the potential concentrations from the release to surface water bodies and wildlife in the area. He conducts routine surface water and sediment sampling events while managing an onsite erosion prevention restoration project he designed.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)

# Joseph Terry

## Project Engineer

### Contact

---

(404) 315-9113 Office  
(813) 943-8633 Cell  
[jterry@envplanning.com](mailto:jterry@envplanning.com)

### Areas of Expertise

---

Groundwater, surface water, soil and sediment sampling  
Monitoring well installation oversight and soil core logging  
Environmental compliance and Tier II reporting  
Storm Water Pollution Prevention Plans  
Installation, operation and maintenance of groundwater and soil remediation systems including groundwater recirculation, chemical injection, LNAPL removal and soil vapor extraction  
Landfill construction design and oversight, including lined landfill slope closure, gas collection and control systems, leachate treatment systems, disposal cell construction  
Landfill permit compliance reporting

### Credentials

---

B.S. Environmental Engineering with a Minor in Ecology, 2002. Michigan Technological University  
A.S. 1995. Henry Ford Community College

### Professional Accreditations

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Engineer-in-Training (EIT)  
OSHA 40-Hr Health & Safety Training  
Current OSHA 8-Hr Refresher Health & Safety Training

### Experience

---

Joe is an environmental engineer with 13 years of experience in a diverse range of projects including; landfill construction, groundwater and soil remediation, environmental site assessment and monitoring. Joe has an extensive background in project and program management, supervision of staff to include multi-disciplinary project teams, contractors and sub-contractors.



### Representative Projects

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**Water Quality Monitoring, Progressive Waste Solutions of FL (PWSFL), Multiple Sites - FL.** Conducted groundwater and surface water sampling, data management and report preparation for the routine water quality monitoring associated with operating permit compliance for all PWSFL Florida facilities including four landfills and five transfer stations.

**National Pollutant Discharge Elimination System (NPDES) Permitting, Progressive Waste Solutions of FL, Multiple Sites - FL.** Developed Storm Water Pollution Prevention Plans and obtained NPDES permits for PWSFL facilities and conducted storm water runoff sampling.

**Landfill Gas Monitoring, Progressive Waste Solutions of FL - Riverview, FL.** Monitored landfill gas extraction wells and surface points for methane, carbon dioxide, oxygen and hydrogen sulfide. Maintained data record and prepared and submitted quarterly monitoring reports to the FDEP.

**Landfill Odor Control, Progressive Waste Solutions of FL - Riverview, FL.** Assisted in the design, and managed the installation of an active gas collection and control system (GCCS) to abate fugitive odor emissions at a Construction and Demolition Debris landfill. The landfill was experiencing fugitive odors associated with landfill gas that were traveling off site and affecting nearby residential communities. The GCCS included a series of horizontal collection pipes underneath a geosynthetic HDPE liner and connected to a vacuum blower and candlestick flare

**Groundwater Sampling and LNAPL Skimmer System Operations and Maintenance, Macon, GA.** Field lead on routine groundwater monitoring using peristaltic and electric submersible pumps. Maintained an LNAPL skimmer system that utilized belt style and bladder pump [Specific Gravity (SPG) and Selective Screen (SOS)] free product collectors.



Environmental Planning Specialists, Inc.  
400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
[www.envplanning.com](http://www.envplanning.com)



# Exhibit 3

## Net Environmental Benefit Analysis (NEBA)

## **Exhibit 3. Net Environmental Benefit Analysis (NEBA)**

### **Net Environmental Benefits Analysis (NEBA)**

Incorporating ecosystem service valuation into decisions regarding environmental tradeoffs can have major social, environmental and economic implications for stakeholders. NEBA assists clients in quantifying and comparing the effects that alternative actions will have on the environment. Understanding these effects helps reduce and manage costs, manage site/action risks and maximize benefits to the environment and the public. EPS uses NEBA to help clients reduce and manage environmental liabilities and associated costs, create and manage land assets, demonstrate environmental stewardship and sustainability, expedite site closures and generate public and agency goodwill.

### **ABOUT NEBA**

NEBA is an overarching strategy that utilizes agency-approved and litigation-tested techniques and tools for quantifying the ecosystem service benefits (social, environmental and economic) associated with alternative land uses or actions that affect the environment.

### **NEBA and Decision Making**

NEBA strategies are designed to balance risks, benefits and tradeoffs associated with competing alternatives. The following provides an overview of how EPS incorporates NEBA strategies to support decision making. These applications help our clients reduce and manage costs, manage site/action risks and maximize benefits to the environment and the public.

### **NEBA and Site Remediation**

Formal quantification of the effect of remedial actions on ecosystem services is rarely considered in remedial decision making. Consequently, tangible metrics that can describe the detriment or benefits associated with different remedial alternatives—and, subsequently, overall site cleanup—are lacking. Therefore, the potential exists for a remedial action to cause more harm to the ecosystem than the harm that is predicted by the risk assessment that drove the remedial action in the first place (i.e., create or increase natural resource liability) or provide a lower marginal benefit than the effort expended.

In developing a remedial action plan, stakeholders and decision makers must understand the potential benefits (i.e., gains in ecosystem service value) and costs (i.e., losses in ecosystem service value) associated with the implementation of various remedial alternatives and their relationship to predicted ecosystem service injury that is suggested by a risk assessment.



NEBA has been employed by EPS staff at state and federal remedial sites across the US, Europe and the Middle East. These applications have helped our clients to understand the cost-benefit "break-point" (e.g., the point at which the proposed remedial action provides a marginal benefit compared to the effort expended) when evaluating intrusive remedial actions. These cases have included sediment, soil and groundwater media.

### **Value of NEBA to Site Remedial Decision Making**

NEBA has been used to achieve the following objectives.

- Provide and demonstrate substantial ecosystem service benefits to the public
- Manage site risks
- Substantially reduce remedial costs
- Create and manage land assets
- Enhance public and agency relations
- Expedite site closure

NEBA provides additional value by doing the following.

- Provides information to supplement the regulatory criteria
- Has a technical, scientific and defensible basis
- Is not arbitrary and uses quantifiable metrics
- Provides a basis for both regulators and the responsible party to support their decisions
- Is unique in that it considers ecosystem assets along with risk profiles and remedial action costs

### **NEBA and Regulatory Guidance**

NEBA is consistent with risk management objectives and guidance. In addition, NEBA is consistent with guidance provided by US and E.U. regulatory agencies related to the coordination of natural resource restoration and site cleanup as well as recent Presidential Memoranda that require ecosystem service values be incorporated into federal planning processes. Regulatory agencies are obligated to assess and understand the potential natural resource injury that may be incurred by remedial actions and to consider the relationship between how these alternatives affect risk reduction and cost. NEBA can be used to support decisions regarding the selection of an appropriate remedy within the remedial action selection (e.g., feasibility study) process.

### **NEBA and Risk Assessment**

NEBA considers the likelihood that identified risks are associated with an injury and the potential magnitude of that injury. As such, NEBA can help to bridge the gap between risk assessment and remedial planning by answering the question, "What do the identified risks mean?" NEBA can be particularly useful when the balance of risks and benefits from remediation of a site are ambiguous. NEBA, which uses the site ecological risk assessment information as input, can provide value at sites that have the following characteristics.

- The contaminated site retains significant ecological value

- The remedial actions are themselves environmentally damaging
- The ecological risks from the contaminants are relatively small, uncertain or limited to a component of the ecosystem
- Remediation or restoration may fail
- A change in the risk scenario (benefit) appears to be disproportionate to costs

#### **WHY EPS?**

- EPS staff (Joseph Nicolette, the Proposed Project Coordinator) co-authored the first formalized framework for NEBA that recognized by the USEPA, USEPA Science Advisory Board, and NOAA.
- Successful use of innovative application of ecosystem service valuation for alternative comparisons, including collaboration with regulatory agencies (US and international)
- Successful resolution of complex environmental issues using NEBA approaches for our clients
- Successful application of NEBA to manage client costs



# Exhibit 4

## Quality Management Plan (QMP)

# Quality Management Plan

*Prepared by:*



400 Northridge Road, Suite 400  
Sandy Springs, Georgia 30350  
Tel: 404-315-9113

January 2018



# Quality Management Plan

*Prepared By:*



400 Northridge Road, Suite 400  
Sandy Springs, GA 30350  
Tel: 404-315-9113

A handwritten signature in blue ink, appearing to read 'Kirk Kessler', written over a horizontal line.

Kirk Kessler  
Senior Principal

A handwritten signature in blue ink, appearing to read 'Joseph Nicolette', written over a horizontal line.

Joseph Nicolette  
Senior Principal

January 2018

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## FOREWORD

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Environmental Planning Specialists, Inc. (EPS) is committed to providing quality environmental data for the purposes of ensuring quality in deliverables to the United States Environmental Protection Agency (EPA). For this reason, EPS has prepared this Quality Management Plan (QMP) as part of EPS's overall Quality System. The QMP provides umbrella guidance for ensuring defensible environmental data is collected for individual projects.

The QMP is meant to provide EPS with a comprehensive plan to ensure that the data produced for projects covered by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) are of a quality that meets the project goals and allows decision makers to act confidently. As environmental technologies continue to advance, it is vital that the Quality System and the supporting QMP are followed through the duration of each project so that the quality of data remain reliable while also meeting the intended use.

This QMP was prepared by the EPS Quality Assurance (QA) Team in accordance with the March 2001 document, *EPA Requirements for Quality Management Plans (EPA QA/R-2)*, and has been reviewed and approved by company leadership. The QMP is a living document that is updated as-needed and reviewed annually, at a minimum. Changes warranting agency approval will be submitted to the EPA in a timely manner.



# 1 MANAGEMENT AND ORGANIZATION

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## 1.1 Quality Assurance Policy

QA and quality control (QC) activities are important to EPS because project decisions depend heavily on the quality of data and information available. The negative consequences of poor environmental data quality can be profound and long-lasting and may include serious environmental and human health implications, financial burdens, and temporal setbacks. For these reasons, it is the goal of EPS to provide high quality environmental data upon which critical project decisions are made.

It is the policy of EPS that:

1. Projects awarded under CERCLA are required to be consistent with the processes outlined in this QMP. The QMP may also be considered or applied to other projects generating environmental data, but this is not a policy requirement.
2. The data quality objectives (DQOs) for generating new environmental data for a CERCLA project will be determined prior to data collection activities. The project DQOs must be clearly stated. In cases where the formal DQO process is required by regulatory agency or program, it should be implemented in accordance with the February 2006 EPA document, *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4)*, or equivalent.
3. A Quality Assurance Project Plan (QAPP) will be developed, as appropriate, for each CERCLA project prior to the commencement of work. Proper QAPP approval channels must be followed.

## 1.2 Quality System Resources

EPS provides in-house and contracted expertise in quality assurance including data quality assessments, data validation, engineering support, and other evaluations provided by chemists, geologists, toxicologists, and environmental scientists. The specific resources required by each project will be outlined by the EPS Project Manager (PM) and the QA Team during the planning phase.

## 1.3 Scope and Applicability of the Quality System

The Quality System covers all data-generating activities for EPS projects under CERCLA. Technical activities supported by the Quality System that require quality management controls may include:

- Field sampling
- Analysis of laboratory data

- Analysis of external data acquired by project partners, publications, etc.
- Database management
- Creating and interpreting environmental models

Technical activities not covered by the Quality System or the QMP include:

- Data collected only for safety or workplace regulations
- Collection of employee medical monitoring data

## 1.4 Organizational Structure, Roles, & Responsibilities

EPS has a QA Team that is responsible for coordinating with the project QA Manager for applicable projects to ensure that the QMP is being followed. The QA Team is formed by the EPS Partners and has at least two members always who are imbedded in different service lines within EPS and at varying organizational levels. This establishes a degree of independence between the QA staff and the project teams generating, compiling, and evaluating environmental data. Due to the overall staff size of EPS, there may be some situations where QA Team members, project team members, and the project QA Manager overlap. In these cases, QA Team members that are not directly involved with the project will lead the QA efforts.

Each EPS project requiring adherence to the QMP (i.e., projects governed by CERCLA) has a QA Manager assigned by the PM who may also act in other roles on the project, such as a senior scientist or engineer. It is the responsibility of the QA Manager to ensure that the project follows the Quality System and the processes outlined in the QMP. The QA Team exists to provide support to the QA Manager and act as an independent Quality System resource for planning and reviews. Both the project QA Manager and a member of the QA Team must approve a QAPP and the QA Team member approving the QAPP must not also be part of the project team. The QA Team may conduct or require the QA Manager to conduct management, technical, or other quality assessments on the project at any time. The PM may also request that a project assessment be performed.

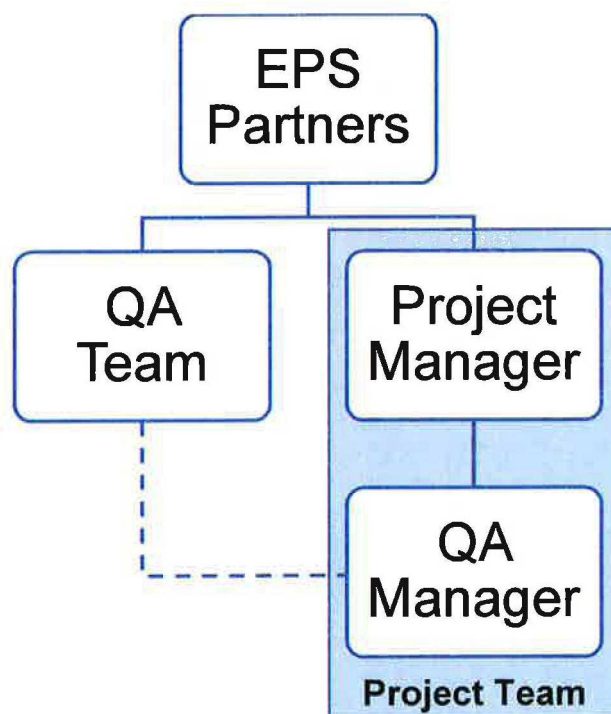
QA Team members report directly to the EPS Partners and the project QA Manager reports directly to the PM. On many projects, the PM is also a Partner. In instances where disputes on quality or QMP procedures arise between the QA Manager, the QA Team, or the PM, a Partner who is not part of the project team (or project task) decides the appropriate course of action and ensures this action is taken. The EPS organizational chart is presented as Figure 1.

## 1.5 Quality System Implementation

It is the responsibility of EPS Partners to ensure that the Quality System is understood and implemented. This is done through the specific training programs outlined in Section 3 of this QMP. Additionally, QA Team members and QA Managers are selected based on proficiency and experience with QA/QC activities.



**Figure 1: EPS Organizational Chart**



**Key:**

- Line of reporting
- - - Line of communication

## 2 QUALITY SYSTEM COMPONENTS

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### 2.1 Principal Components of the Quality System

Components of the Quality System include staff with defined roles and responsibilities, training, documentation, systematic planning of projects, and reviews and assessments. To maintain an effective Quality System, it is essential that EPS clearly states the QA policy (as defined in this QMP), outlines project goals and quality expectations, adheres to applicable regulatory requirements (i.e., EPA orders, guidelines, etc.), utilizes Quality System tools (described below), provides adequate QA training to staff, establishes communication processes, and implements procedures to provide continued improvement.

### 2.2 Quality System Tools

EPS uses a graded approach to the Quality Management Plan as described in *EPA Requirements for Quality Management Plans (EPA QA/R-2)* and recognizes that different projects require a varying degree of formal planning. The following section describes the Quality System tools for planning, implementation, and evaluation and assessment that are available to EPS management and staff to support the principal components of the Quality System. The QA Team and the project QA Managers are responsible for ensuring that the specific Quality System tools are utilized as appropriate for CERCLA projects.

#### 2.2.1 Quality Management Plans

The QMP is a planning and implementation tool that describes the policies, procedures, and systems governing EPS data collection activities. It serves as the umbrella document for all QA/QC operations within projects governed by CERCLA, but may also be extended to non-CERCLA projects if deemed appropriate by the PM. The annual review process for the QMP is discussed in Section 9.

#### 2.2.2 Systematic Planning and Data Quality Objectives

Systematic planning is a project planning tool used to develop project-specific DQOs. The EPA *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4)*, or equivalent, is used during the project planning phase in the development of DQOs. Systematic planning is further discussed in Section 7 of this QMP.

#### 2.2.3 Quality Assurance Project Plans

A QAPP must be prepared during the planning phase of each CERCLA project following the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP), established by the Intergovernmental Data Quality Task Force (IDQTF). The March 2012 Optimized UFP-QAPP



Worksheets were developed from the *EPA Requirements for Quality Assurance Project Plans EPA (QA/R-5)*, March 2001, and are used in QAPP preparation. More details on QAPP development are provided in Section 7 of this QMP.

#### **2.2.4 Standard Operating Procedures**

Standard Operating Procedures (SOPs) are a planning tool that ensures comparability across data collection projects. EPS uses EPA-developed SOPs as well as SOPs prepared internally. Any SOPs used for a project will be cited in the QAPP or other relevant project planning document. Examples of some commonly used environmental SOPs include:

- Soil sample collection
- Groundwater monitoring well sampling
- Water sampling from groundwater treatment systems
- Soil vapor sample collection
- Decontamination procedures
- Groundwater monitoring well installation

SOPs are discussed further in Section 8 of this QMP.

#### **2.2.5 Management System Reviews**

Management System Reviews (MSRs) are an assessment tool that are performed periodically to measure the effectiveness of the Quality System and the planning process. Further details on MSRs are provided in Section 9 of this QMP.

#### **2.2.6 Technical System Audits**

Technical System Audits (TSAs) are a tool that are used to assess the effectiveness of the Quality System in providing the required quality of data for CERCLA projects. TSAs are described more thoroughly in Section 9 of this QMP.

## **3 PERSONNEL QUALIFICATIONS AND TRAINING**

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### **3.1 Introduction**

This section is intended to address the EPS quality system training policy, training and implementation processes, project training needs and requirements, and documentation of training provided.

### **3.2 Quality System Training Policy**

EPS is committed to having qualified and properly trained personnel supporting its projects and generating or utilizing high quality environmental data.

### **3.3 Training Processes**

Prior to starting a project requiring adherence to the QMP, the QA Team and QA Manager must have received the necessary training within the previous year. The training must be taken at least annually for the duration of the project. The EPS Partners are responsible for ensuring that the QA Team and QA Manager meet these training requirements in a timely fashion. The training includes an in-depth review of the QMP and the procedures described herein.

During the formation of a project team, it is the responsibility of the PM to ensure that assigned personnel possess the necessary level of expertise (including education, technical and project management experience, and training) required to effectively support a project.

### **3.4 Training Documentation**

For each project requiring adherence to the QMP, the QA Manager ensures training logs are maintained documenting that the necessary QA training has been provided. These training logs are maintained electronically on the EPS server.



## 4 PROCUREMENT OF ITEMS AND SERVICES

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EPS often procures items and services, such as sampling equipment, field equipment, contracted monitoring or sampling services, and laboratory services. The items and services are procured as-needed and the purchases or contracts are reviewed by an EPS Partner or the PM.

Members of the project team may propose equipment or service needs to the PM. The QA Manager, PM, or other EPS Partner reviews the proposed procurement needs and any procurement documents prior to submittal to the vendor. Where QA requirements are necessary, the PM certifies that procurement documents clearly state the equipment or service to be provided, any technical and quality requirements, and the responsibilities of the vendor upon providing the equipment or service. Procured services must follow any applicable SOPs or meet an equivalent level of quality assurance. The QA Manager, PM, or other EPS Partner reviews contracts or purchases prior to approval. A mirrored process occurs when responding to solicitations for equipment or services. The QA Team can review procured items or services as deemed necessary by the QA Team for their conformance to contractual or quality obligations. All contracts must be signed by an EPS Partner.

## **5 DOCUMENTS AND RECORDS**

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### **5.1 Documents and Records Requiring Control**

EPS maintains a number of records and documents for CERCLA projects intended to ensure high quality environmental data, including records generated through QA processes. Such documents may include:

- QMP
- DQO development tracking
- QAPPs
- MSR reports
- TSA reports
- SOPs
- Field sampling plans
- Work plans
- Field notes and logs
- Laboratory analytical reports

Any other documents generated as part of a QA process or produced during a project and affecting data quality will be treated with the same document control methods as the document types listed above. Project-specific documents are kept electronically as clearly titled files in the project folder on the EPS server. The QA Team may add QA documents to the server or audit the files present on the server. It is the responsibility of the QA Manager to confirm the QAPP is present in the project folder, to determine and communicate which project records must follow document control procedures, and to verify that the relevant records are present on the server and properly identified.

### **5.2 Document Preparation and Review**

QA documents for which changes are necessary are held to the same standards as the original documents. Documents that have been changed must undergo the same level of review as the original by an individual or group with a similar level of competence in the relevant area, and the original record must be adequately documented.

### **5.3 Record Management**

EPS shall assign responsibility for maintaining and managing records prior to the start of a CERCLA project. The responsible personnel shall follow EPS policy regarding the management of records and communicate the policy to the project team. At a minimum, documents that have



been classified as requiring management or retention shall be clearly identified and easily accessible by the project team and QA Team for retrieval.

## **5.4 Regulatory Compliance**

EPS complies with all relevant state and EPA regulations and requirements for quality documents for CERCLA projects. The QA Team may audit these project documents to verify their compliance with applicable regulations.

## **5.5 Evidentiary Records**

The project team is responsible for managing all quality evidentiary records and communicating their confidentiality where applicable. The PM is responsible for notifying the project team of the records that must be considered as evidentiary records.

## **6 COMPUTER HARDWARE AND SOFTWARE**

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### **6.1 Hardware QA and QC Processes**

Potential hardware used to collect or generate data may include sampling devices, monitors, and sample analyzers. EPS relies on the contractor to provide high quality data and the hardware vendor to provide data quality guarantees regarding the hardware capabilities. The project team uses their background and experience when reviewing acquired data to confirm the quality of the collected data and further investigates questionable data.

### **6.2 Software Development QA and QC Processes**

EPS does not develop computer software. Instead, EPS uses commercially available software for any software needs. EPS endeavors to comply with all relevant EPA standards and regulations regarding its use of software. Project team members not already familiar with the software used for a project are trained on the use of the software. Examples of software include geographical systems, database management systems, modeling software, and statistical analysis software.



## 7 PLANNING

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### 7.1 Systematic Planning

EPS follows the EPA-recommended guidance for systematic planning to develop DQOs, *Guidance on Systematic Planning Using the Data Quality Objectives Process (EPA QA/G-4)*, February 2006. The guidance describes seven steps to develop project DQOs: (1) state the problem, (2) identify the goals of the study, (3) identify information inputs, (4) define the boundaries of the study, (5) develop the analytical approach, (6) specify performance or acceptance criteria, and (7) develop the plan for obtaining data.

Following this systematic planning guidance, the project QA Manager will lead the effort in developing the project DQOs. The QA Team and the PM should be involved through the duration of the planning process and approve the final DQOs and associated project work plans, such as sampling plans and schedules. If project DQOs need to be revised during the project, the systematic approach must again be followed and the new DQOs must be approved by the QA Team and the PM. It is also the responsibility of the QA Manager and the PM to ensure that the project plans are followed and the goals are achieved. Work implementation and assessment activities are provided in Section 8 of this QMP.

### 7.2 Quality Assurance Project Plans

At the start of a CERCLA project and prior to the commencement of data collection, a QAPP must be written and approved using the IDQTF Optimized UFP-QAPP Worksheets described in Section 2 of this QMP (from *EPA Requirements for Quality Assurance Project Plans EPA (QA/R-5)*, March 2001). It is the responsibility of the project QA Manager to coordinate with any project subcontractors, such as analytical laboratories and validators, when developing the QAPP. In the event that a QAPP needs to be revised after it has been approved, the QA Manager must submit a revised QAPP for the appropriate re-approvals by subcontractors, regulators, the EPS QA Team, and the PM.

### 7.3 Secondary Data

Secondary data is defined as data obtained from other sources, such as outside organizations, computer databases, models, and literature, that may have been collected for purposes other than the specific needs outlined in the project work plan or QAPP. For this reason, it is important to determine if the secondary data may be used to meet the current needs. While data sharing is encouraged whenever possible, it should only be done when adequate data quality indicators are available to evaluate and determine that the data meets the same quality standards described in this QMP and that project goals will be met. The project QA Manager will lead the effort to evaluate secondary data on a project basis.

## **8 IMPLEMENTATION OF WORK PROCESSES**

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### **8.1 Assessment of Work Performance**

It is the policy of EPS that the QA procedures described in this QMP are followed for each CERCLA project, including strict compliance to the QAPP. Therefore, it is important that work is performed in accordance with the procedures outlined in the project plans and that the goals of the project are achieved in order to obtain quality environmental data. To do this, the project QA Manager, with assistance from the QA Team, is responsible for reviewing all work products throughout the project duration, such as field notes and sample forms, deliverables from subcontractors, and SOPs, and comparing them to the approved planning and technical documents. If QA issues or discrepancies are noted, the QA Manager must notify the PM and the QA Team, who will then determine the appropriate corrective action.

#### **8.1.1 Procedures for Unplanned Work Deviations**

In some cases, the QA Manager, QA Team, or PM may recommend changes to approved plans (i.e., work plans, QAPPs) as the necessary corrective action for QA issues that arise during project implementation. As described in Section 7 of this QMP, any changes to the QAPP must follow the same protocols as the initial QAPP, including appropriate re-approvals. If a field sampling plan, work plan, or other planning document requires revision, it should be approved and documented by the PM, at a minimum. Any plan changes must take effect as soon as feasible in order to maintain data quality. The project QA Manager will continue to assess work performance and verify that the necessary changes were implemented and appropriately documented.

#### **8.1.2 Standard Operating Procedures**

SOPs are a planning tool that are used on almost every project. While SOPs are required to be included in the QAPP, changes to SOPs or the use of new SOPs may be necessary during project implementation when unforeseen conditions arise. The EPA and many state environmental departments offer SOPs that may be utilized by the project team, or the project team may need to write an internal SOP for a specific routine process not already covered by agency protocols.

Any member of the project team may identify operations needing procedures to the QA Manager, who will then lead the effort to locate an existing SOP or develop a new SOP. New SOPs must be approved by the QA Team and the use of the new SOP on said project must be approved by the PM, at a minimum. Any document changes that result from the addition, revision, or removal of an SOP from use in a project should follow the same procedures as the initial document (as described in Section 8.1.1 of this QMP).



## 9 QUALITY SYSTEM ASSESSMENT AND RESPONSE

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### 9.1 Assessment Activities

EPS uses internal management and technical reviews to assess the performance of the Quality System.

#### 9.1.1 Annual Review of the QMP

A review of the QMP will be conducted once per calendar year and at any other time when significant changes occur within the organization's operational structure. The QA Team will lead this process to gain concurrence from the EPS Partners and the EPA. Revisions and updates will be documented and prepared for submission to the EPA in a timely manner. If updates to the QMP after an annual review are determined to not be necessary, the approved QMP is valid for up to five years before EPA re-approval is required.

#### 9.1.2 Management System Reviews

To assess the Quality System described in this QMP, EPS performs periodic MSRs in accordance with the March 2003 EPA document, *Guidance on Assessing Quality Systems (EPA QA/G-3)*. The MSR will provide a qualitative assessment to determine if the Quality System is adequate to ensure the quality of environmental data. MSRs address the effectiveness of management controls in achieving and assuring data quality, the adequacy of resources and personnel devoted to QA functions, the effectiveness of training and assessments, and the applicability of data quality requirements. The QA Team is responsible for coordinating and conducting MSRs as-needed.

Most MSRs will examine the following elements:

- An assessment of the overall effectiveness of the Quality System, as measured by its adherence to the approved QMP
- Procedures for developing DQOs
- Procedures for developing and approving QAPPs
- The effectiveness of existing QAPP guidance
- Procedures for developing and approving SOPs
- Responsibilities and authorities of various line managers, and QA personnel, for implementing the Quality System
- The degree of management support

EPA QA Office has the authority to audit the Quality System as part of its oversight responsibilities. For this reason and continued system improvement, the EPS QA Team completing

the MSR must document findings and recommendations in a report submitted to the EPS Partners for review. A copy of the MSR report is stored on the company server. The QA Team also ensures that any corrective actions are implemented in a timely manner.

### **9.1.3 Technical System Audits**

A TSA is conducted to assess the sampling and analytical quality control procedures used to generate environmental data. The QA Team will use TSAs to evaluate laboratory and field procedures used by EPS personnel and contractors. TSAs entail a comprehensive, on-site evaluation of the field equipment; sampling and analyses procedures; documentation; data validation; and training procedures for collecting or processing environmental data. TSAs may be routinely planned by the QA Team, or requested by a PM, in accordance with *Guidance on Technical Audits and Related Assessments for Environmental Data Operations (EPA QA/G-7)*, January 2000. Like MSRs, a written TSA report is completed by the QA Team and submitted to the EPS Partners for review. A copy of the TSA report is stored on the company server. The QA Team also ensures that any corrective actions are implemented in a timely manner.

## **9.2 Assessor Qualifications and Authority**

Members of the QA Team serve as Quality System Assessors for reviews and audits. As detailed in Section 3 of this QMP, EPS personnel performing QA/QC work are routinely trained in the Quality System and are experienced with the procedures and specific documents references in this QMP. The QA Team reports directly to the EPS Partners and are granted the QA/QC authorities described in this document.

## **9.3 Assessment Results and Response Actions**

The QA Team is responsible for preparing assessment reports in a timely manner and submitting them to the EPS Partners for review, after which the QA Team schedules time to discuss the results with the Partners and select response actions. At least 40% of the Partners must participate in the review discussions. Once the corrective actions are chosen, it is the responsibility of the QA Team to coordinate their implementation and ensure they are completed appropriately.



## 10 QUALITY IMPROVEMENT

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Generating quality environmental data is important to EPS, so efforts to identify flaws in the Quality System and areas for improvement are vital to ensure continued quality. EPS utilizes the review tools described in this QMP to help identify QA/QC deficiencies and provide communication channels to implement corrective actions.

### 10.1 Quality System Improvements

Processes for reviewing the Quality System and implementing improvements are discussed in Section 9 of this document. It is important that the QA Team ensures that corrective actions are taken and appropriate documentation is maintained. Additionally, retraining personnel may be necessary if required by the corrective action. Since the Quality System is valid company-wide, any disputes are resolved by the EPS Partners.

### 10.2 Project Level Improvements

PMs and QA Managers may request project QA reviews by the QA Team at any time during the project planning or implementation phase. Additionally, the QA Manager is responsible for tracking QA/QC protocols through the duration of a project and communicating any deficiencies. Corrective actions identified for specific projects must be implemented as soon as feasible to maintain project integrity and continual generation of quality data. As previously discussed, it is the responsibility of the QA Manager to ensure that the corrective actions are implemented appropriately and in a timely manner.